Marta Peris-Ortiz · Jean-Michel Sahut

Editors

New Challenges in Entrepreneurship and Finance

Examining the Prospects for Sustainable Business Development, Performance, Innovation, and Economic Growth

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Preface

This book comprises 19 original contributions related to entrepreneurship and finance. These chapters examine prospects for sustainable business development, performance, innovation and overcoming economic crises.

Entrepreneurship, as an expression of human creative capacity, arises in the world of business, as well as in other areas of society. It has been studied from various management perspectives with different sensibilities: Schumpeter, with reference to the ability to discover and exploit opportunities; Edith Penrose, with reference to the manager's mind as a fundamental resource for companies; and Shane and Venkataraman, who pointed out that economic entrepreneurship is "the study of sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them".

In addition, emergence and development of small- and medium-sized enterprises (SMEs)—the firms explored in this book— depends on entrepreneurship initiatives and access to resources, especially those of a financial nature. Due to this reliance on external financial resources, SMEs have faced serious financing problems since the economic crisis hit in 2008. In a context where traditional credit markets are far more stringent than in recent past, small businesses are increasingly turning to financial institutions and governments for solutions and novel proposals to overcome this hurdle.

As a result, the study of entrepreneurship should be linked, as far as possible, to the way in which financing can fulfill its primary function of feeding capital to SMEs and the economy as a whole. Other issues within entrepreneurship and financing are also analyzed in this book. These issues relate to how institutions have been affected by the economic crisis, but are also associated with prerequisites for correct business functioning and orientation. New opportunities have appeared to allow businesses and economies to grow, and they pave the way for renewal of the economic framework. These novel approaches, however, depend on entrepreneurs' finding a way to develop their activities, and the availability of resources—particularly financial—necessary to do so.

In Chaps. 4, 7, 9, 11, 12, 13 and 17, a range of approaches are adopted to address how institutions relate to entrepreneurship. Chapters 4 and 11 explore the relationship between legitimacy and entrepreneurship, which may have been altered by the recent economic crisis. With a different focus, Chap. 9 investigates the relation between business angels and entrepreneurship. Chapters 13 and 17 highlight key relationships between financial institutions and entrepreneurial activity, whereas Chaps. 7 and 12 address a different institutional dimension: that of businesses' internal attributes, which are highly relevant for entrepreneurship to flourish. Chapter 7 presents an analysis of the importance of the Board of Directors in family enterprises and their relevance in entrepreneurial orientation. Covering the same topic, Chap. 12 examines culture within family businesses, and how this contributes to corporate entrepreneurship.

Chapters 1, 3 and 18 each present a study of entrepreneurship. Through research into exporting firms, Chap. 1 highlights the importance of resource availability and constraints on results. The study in Chap. 3 explores inter-firm cross-border co-opetition, a particularly useful innovation for SMEs. Chapter 18 focuses open innovation in low- and medium-tech firms—a historically understudied group of firms—in terms of entrepreneurial activity.

Chapter 5 presents innovative financial models for an efficient foreign exchange market. Chapter 16 describes a method to measure entrepreneurial activity through an econometric model that measures entrepreneurship intensity or *temperature*. Chapter 19 is devoted to proposing a model to evaluate, in monetary terms, corporate social responsibility and social entrepreneurship.

Finally, Chaps. 2, 6, 8, 10, 14 and 15 are more specialized in research questions of a financial nature. These studies cover return expectations from venture capital deals in Europe; profitability in venture capital in start-up funding; the effect of entrepreneurial orientation on results (showing that lower financial performance does not equate to entrepreneurial failure); serial entrepreneurship in terms of organizational capital and access to venture capital; effects of the recent banking crisis on entrepreneurship; and the relation between characteristics of start-ups and banking financial constraints.

This collection of studies, all adopting applied research methods, provides readers with an important information handbook. It also offers a relevant set of ideas for reflections on business management.

Valencia, Spain   Marta Peris-Ortiz
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Contents

Chapter 1
Export Entrepreneurship and Export Performance. A Resource and Competitive Perspective

Antonio Navarro-García and Marta Peris-Ortiz

Abstract This research has three main objectives. Firstly, from a theoretical point of view and taking into account the scarcity and fragmentation that exists in the literature, to contribute to defining the concept of export entrepreneurship, as well as its dimensions – speed, degree and scope. Secondly, to empirically find out the determinants of export entrepreneurship from the resource – based view RBV – and the contingency approach. Thirdly, to know the effect of the exporting venture on the business results, both quantitatively (sales growth) and qualitatively (manager satisfaction). A conceptual model that is verified with a multi – sectorial sample of 212 Spanish exporting companies is proposed. The results reveal that export entrepreneurship positively depends on internal factors, such as resources associated with experience and structure. It is likewise determined by contingency factors linked to the external environment, such as competitive intensity. This paper also shows that export entrepreneurship has a positive effect on export performance. The results produce academic and managerial contributions for the field of export activities.

1.1 Introduction

In today's business environment, characterized by the increasing globalization of markets and interrelation of economies, internationalization strategies are becoming particularly important, since all firms, even those choosing to operate exclusively in their own domestic market, face the challenges of international competitiveness. In this context, exporting is a fundamental strategy for ensuring firms' survival and growth, this being the traditional way of entering foreign

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markets (Navarro et al. 2011). The majority of studies on export activity have focused on the individual influence – direct or indirect – of different antecedents on the firm's export performance, including firm characteristics, managers' profile and training, planning and organization of export activity, relational exchanges, managerial competences and capabilities, market orientation, and so on (Aaby and Slater 1989; Zou and Stan 1998; Sousa et al. 2008). However, very few studies in the context of export activity have considered entrepreneurship as a determinant of export performance (Ibeh 2004).

Individually, both topics – entrepreneurship and exports – recur in the economic, management and marketing literature. However, the extant knowledge about export entrepreneurship is very limited (Hessels and van Stel 2011). Its origin can be found in the fragmentation and absence of a theoretical framework accepted in the field to which it belongs –international entrepreneurship– which is characterized by different knowledge gaps, theoretical inconsistencies and contradictory results (Keupp and Gassmann 2009). In this context, this study means to advance in the knowledge of export entrepreneurship and conceptually establish it. To do so, the three basic dimensions of international entrepreneurship are used: degree, scope and speed. Its antecedents are also analyzed from the resource-based view (RBV) and the contingency approach.

The paper has three main contributions. First, export entrepreneurship is conceptualized from the dimensions of speed, degree and scope as a process by which a firm – its directors – through exports, and taking into account the internal and external factors which affect them, seeks to quickly exploit – practically from its setting up – opportunities in external markets. It does so simultaneously in numerous countries, diversifying its work area and risks, and doing so with a high export orientation or intensity. Secondly, taking the RBV as a reference, it is shown that the level of entrepreneurship is conditioned by organizational factors – experience and structure. Thirdly, from the contingency approach, it is shown that the factors of the exporting firm's external environment – competitive intensity – also condition export entrepreneurship. In this way, in this study competitive intensity increases the exporting firm's level of entrepreneurship.

To achieve the aims proposed, the paper has the following structure. First, the conceptual model is set out, defining the concept and dimensions of export entrepreneurship from the dimensions of international entrepreneurship: degree, scope and speed. Next, the drivers of export entrepreneurship are modeled using the RBV and the contingency approach. This allows the defining of the research hypotheses. Then, the research method used is explained from a multisectorial sample of 212 Spanish exporters. Finally, the results are discussed and the main conclusions and the study's contributions are presented, both academic and from the management practice point of view. The work finishes with its limitations and suggestions for future lines of research.

1.2 Theoretical Background

1.2.1 Export Performance

Export performance is essential for decision making in the international arena (Madsen 1998). Cavusgil and Zou (1994) define export performance as the extent to which the firm achieves its objectives when exporting a product in a foreign market, whether economic (profits, sales, costs, etc.) or strategic (expansion of market, increase in market share abroad, etc.), through the planning and execution of its international marketing strategy.

Three basic aspects of export performance emerge from the literature review (Zou et al. 1998; Rose and Shoham 2002; Sousa 2004): (1) it is a multidimensional concept, which must be assessed through quantitative measures (sales, profitability, growth, etc.) and qualitative measures (perceived success, satisfaction, achievement of objectives, etc.); (2) it should not be evaluated at a point in time (short term) but over a given time horizon (Lages and Montgomery 2004); (3) assessment measures must reflect management perceptions of performance (e.g., management satisfaction with export performance) (Lages et al. 2008).

This present study takes into account the above three aspects (1) it conceives two dimensions of export performance, a quantitative dimension, (growth of export sales) and a qualitative one, (management satisfaction); (2) export performance is evaluated over a period of time (the last 3 years); (3) account is taken of management perceptions (management satisfaction) with various measures linked to the firm's success in foreign markets (reputation and image, international expansion, market share, etc.).

1.2.2 Export Entrepreneurship

Yeoh and Jeong (1995) pointed out that export firms could be differentiated according to their entrepreneurial orientation. Thus, while some exporters tend to be proactive, innovative and have less risk aversion in the search for business opportunities in foreign markets, others tend to be reactive or conservative. In line with Yeoh and Jeong (1995), Ibeh and Young (2001) define export entrepreneurship as the process by which people, either by themselves or within organizations, take advantage of market opportunities – foreign – taking into account the resources available and the environmental factors which affect them. This definition highlights that export entrepreneurship depends on internal (e.g., resources) and external (e.g., environment) factors. Ibeh (2003) adds to the definition of Ibeh and Yung (2001) that export entrepreneurs are those who are proactive and aggressive in the search for export opportunities related to products-markets innovations. This description opened the debate about what should be understood as export proactivity, incorporating three new elements to the literature on export

entrepreneurship: speed, degree and scope. *Speed* refers to the time that the firm takes to start up its export activity (Acedo and Jones 2007). The *export degree* or intensity determines the export firm's level of orientation toward foreign markets, in relation to the domestic markets (Kuivalainen et al. 2007), normally using the export sales/total sales ratio to measure this. *Scope* determines the number of foreign markets –countries– in which the export firm generates international sales. This is referred to in the literature as export extension or diversification (Ruzo et al. 2011; Beleska-Spasova et al. 2012).

In this context, bearing in mind the contributions pointed out in the literature, export entrepreneurship can be conceptualized as the process via which a firm –its directors– through exporting, and taking into account the internal and external factors which affect it, seeks to quickly exploit- practically from its set up-opportunities in the external markets. It does so in numerous countries simultaneously, diversifying its area of action and risks and has a strong export orientation or intensity. The nature of export entrepreneurship is therefore tridimensional, determined by the speed, degree and scope with which the export firm seeks and exploits opportunities in foreign markets.

1.3 Conceptual Model and Hypotheses

1.3.1 Resources and Export Entrepreneurship

The RBV conceives resources to be the cornerstone of business results (Barney 1991). The epicenter of this approach is to know how firms can achieve competitive advantages and results which are superior to their competitors' in the same market, via acquiring and exploiting resources that are unique and inimitable (Makadok 2001; Dhanaraj and Beamish 2003). The resources and performance relationship has also centered the attention of researchers in the area of export activity (Cadogan et al. 2009; Colton et al. 2010; Lages et al. 2009; Morgan et al. 2004, 2006; Singh 2009; among others). However, there is a broad lack of awareness about the resources-export entrepreneurship relationship. In the present work, we are going to consider two types of resources (Ruzo et al. 2011): (a) resources associated with experience -experiential resources; and (b) resources associated with structure- structural resources.

Regarding experience, we distinguish between general and international experience. General experience is connected to knowledge of business activity in the industry in which there is competition (Zou and Stan 1998), while international experience indicates the level of knowledge about foreign markets (Fischer and Reuber 2003). General experience provides a fundamental basis to initiate internationalization movements –the fruit of organizational learning and the increase of managerial confidence in decision making (Majocchi et al. 2005). It reinforces the planning level and reduces the levels of improvisation, decreasing the likelihood of

making erroneous decisions in markets that are different from the domestic market (Nemkova et al. 2012). All this can reinforce the organization's export orientation, driving the degree and scope inherent in export entrepreneurship (Ruzo et al. 2011). International experience is a generator of specific learning linked to the export activity, and provides available information to facilitate the firm's adaptation to the needs of the foreign markets and makes international positioning easier (Morgan et al. 2004). It reduces the perceived export risks and barriers, increases the firm's orientation toward foreign markets and drives its entrepreneurial spirit (Autio et al. 2000; Knight and Cavusgil 2004). This leads us to the following hypothesis:

H1: The resources associated with experience –general and international- positively influence the level of export entrepreneurship.

On the other hand, there is a positive correlation between the creation and adaptation of specific systems and infrastructure for the export activity and the advance of the firm in its process of internationalization (Vermeulen and Barkema 2002). Thus, the creating of an export department helps to organize and plan the export activity (Caruana et al. 1998), and facilitates the gathering of information about the external markets, speeding up the search for and exploitation of new opportunities (Czinkota and Ronkainen 2002). This increases the firm's international competitiveness. Then this is reflected in a greater export orientation which will influence the levels of market diversification and will accelerate the organization's internal expansion (Ruzo et al. 2011). The arguments presented lead us to propose the following hypothesis:

H2: The resources associated with a specific structure –an export department– for the export activity positively influence the level of export entrepreneurship.

1.3.2 Competitive Intensity and Export Entrepreneurship

The external environment tends to be one of the main decisive elements of the export firm's entrepreneurship level (Yeoh and Jeong 1995). It is a question of a contingency factor which influences the exporter's proactivity in seeking and exploiting opportunities in external markets (Ibeh 2003).

Following Keupp and Gassman (2009), the factors of the external environment which determine the level of international entrepreneurship are divided into two types: those associated with the industry and those linked to the country. In the industry context, one of the most relevant factors is competitive intensity. This is defined by the level of rivalry which exists between an industry's different competitors and is a reflection of the environment's hostility (Auh and Menguc 2005). It tends to increase the dynamism of the market and influences the organization's strategic agility to adapt to such changes (Zahra et al. 2000).

In the export activity context, competitive intensity tends to be reflected in a greater degree of adaptation of the marketing-mix program with the aim of

satisfying the needs and desires of foreign consumers (Navarro et al. 2013). It also reflects a greater development of market-oriented behaviors (Cadogan et al. 2003), and, given the need to seek and exploit business opportunities outside the domestic area, positively influences the scope and degree of the organization's international orientation (Mittelstaedt et al. 2006). These arguments support the proposal of the following research hypothesis:

H3: The competitive intensity positively influences the level of export entrepreneurship.

1.3.3   Export Entrepreneurship and Export Performance

Some works have shown that the international scope of the exporting firm, evaluated through the number of countries in which it is present, influences the export result (Navarro 2002; Ruzo et al. 2011). It is thus considered that those exporting firms which diversify their markets – commercializing their products and/or services simultaneously in multiple countries – tend to achieve better results than those whose international scope is more limited. Other works have shown that that the development of accelerated internationalization processes – which are usually indicative of a greater internationalization of the organization and even a more global view of international business – has a positive influence on the results achieved by the firm in foreign markets. This has been shown, from the export perspective, in the works of Zahra et al. (2000), Kuivalainen et al. (2012) and Powell (2014), for example. Also some authors have pointed out the positive effect of the organization's exporting orientation on the export result. Thus, those organizations whose managers are more proactive in the search for business opportunities in foreign markets, show a greater export orientation, tend to have higher sales, profit, etc., and are more satisfied with the export performance than those with a lower international orientation (Ibeh 2004; Nemkova et al. 2012). To sum up, the arguments presented support the proposition of the possible existence of a positive relationship between the level of the export entrepreneurship – determined by the greater entrance speed, international scope and export orientation – and the results that the firm achieves in foreign markets. This is why we propose the following research hypothesis.

H4: There is a positive relationship between export entrepreneurship and the export performance

We see the relationships proposed in Fig. 1.1.
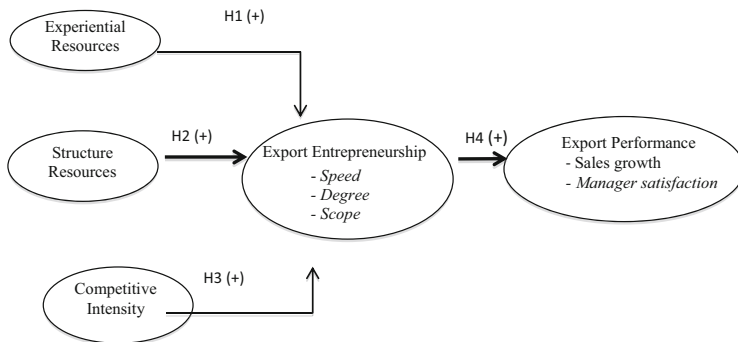
Fig. 1.1 Conceptual model

1.4 Methodology

1.4.1 Sample and Data Analysis

An empirical study of Spanish export firms is performed. With regard to the activity of Spanish export firms in general, data from the Ministry of Industry, Tourism and Commerce (2012) reveal a strong concentration of export activity in a small number of firms (1 % of the exporters generate 64 % of total exports) and a strong geographic concentration in foreign markets (70 % of the exports go to other European Union countries). The main sectors are capital goods (22 %), automobiles (18 %), and food (14 %). We used a multi-industry sample to enlarge observed variance and emphasize the generalization of the findings (Morgan et al. 2004).

The sample of firms was obtained from the database of exporters of the Spanish Institute for Foreign Trade (ICEX). Maintaining sectorial proportionality, questionnaires were sent, mainly via e-mail, to 1,200 managers in charge of exports. 212 valid questionnaires were obtained, representing a response rate of 17.7 %. This is within the range between 15 and 20 % considered as an adequate response rate (Menon et al. 1996).

The majority of the sample's firms were small (66 % have less than 50 employees) and had taken on only a few employees carrying out export-related tasks (86 % have less than 5 export-related employees). The greater part of them (81 %) had assigned export managers, though only a minority (33 %) had an export department. Most firms had a great amount of experience in their business (86 % over 16 years in their sector), and much experience in international business (61 % more than 15 years of export activity). Finally, the majority of the sample's firms concentrate their export sales in a few markets (71 % exported to five countries or less).

A single key informant was selected in each firm to report on export activity. Using only one well-informed respondent may potentially reduce the systematic and random sources of error (Huber and Power 1985). To ensure the reliability of

the data source, the respondents were required to be senior managers in charge of exports. A specific section of the questionnaire asked respondents for their job title and assessed their competency in terms of knowledge, involvement, and responsibilities in export activity. High scores on the skills about export questions indicated that potential bias attributable to the key informant was minimized.

Structural equation modeling via PLS (partial least squares) is the choice of method for data analysis and for assessing the relationships between constructs, taking into account the characteristics of the model (predictive) and the sample (fewer than 250 subjects) (Reinartz et al. 2009). The empirical analysis uses the SmartPLS 2.0 M3statistics package.

1.4.2   Measurement Scales

MacKenzie et al.'s (2005) recommendations for distinguishing formative and reflective variables have been taken into account in the multi-item measures of the study. Export entrepreneurship is also considered a formative construct made up of three dimensions: (a) speed, which refers to the time – years- that the firm takes to set up its export activity (Acedo and Jones 2007); (b) degree, which determines the export intensity, using the export sales/total sales ratio for its measurement (Kuivalainen et al. 2007); (c) scope, which dictates the number of foreign markets – countries- in which the export firm generates international sales (Beleska-Spasova et al. 2012). The resources associated with experience and structure were described according to the work of Ruzo, et al. (2011). The experiential resources were defined by the number of years in the sector and the number of years exporting. The structural resources available for exporting were measured by there being an export department. The evaluation of the competitive intensity was made according to the work of Cadogan et al. (2012), being represented as the extent of rivalry among different players in an industry. This is a first order reflective construct and was measured through a five-point Likert type scale, allowing managerial perceptions of the variables analysed to be picked up. Finally, export performance is considered a second-order formative construct composed of two very different dimensions, growth in sales and satisfaction. Following Cadogan et al. (2002), the qualitative dimension of export performance was evaluated through export managers' perceived satisfaction over the achievement of five objectives in the last 3 years: growth of international sales, firm image and notoriety in foreign markets, profitability of the export business, market share and international expansion. The quantitative dimension was measured through growth in export sales in the last 3 years (Cavusgil and Zou 1994; Navarro et al. 2010).

1.5   Results

1.5.1   Evaluation of Measurement Model

Two different stages were carried out to interpret and analyze the model proposed using PLS (Barclay et al. 1995): (1) the evaluation of the measurement model; and (2) the analysis of the structural model. This sequence ensures that the measurement scales proposed are valid and reliable before testing the hypotheses. For the reflective scales, the factor loadings were all above the recommended 0.7 score (Carmines and Zeller 1979). The composite reliability and average variance extracted (AVE) values also exceeded the recommended values of 0.7 and 0.5, respectively (Fornell and Larcker 1981). Thus, the results support the convergent validity of the reflective scales considered in this study (Table 1.1). Then, to ensure the discriminant validity, the authors confirmed that the squared correlations between each pair of constructs did not exceed the AVE (Barclay et al. 1995). It was also checked that the inter-correlations between constructs were significantly different from 1, which provided additional evidence of the discriminant validity. In addition, none of the correlations between constructs reaches the 0.5 score (Table 1.2).

1.5.2   Testing Hypotheses: Parameters of the Structural Model

After having ensured the convergent and discriminant validity of the measurement model, the relationships between the different variables were tested. The different statistical parameters were calculated using the bootstrap method (1,000 subsamples) (Table 1.3). Although many researchers opt for computing 500 subsamples in their studies, and this is enough, in the current work it was decided to use 1,000 to reduce the randomness (Davidson and Mackinnon 2000). The hypothesis tests considered the sign and significance of the t-values in each relation (β coefficient). All the hypotheses considered are confirmed in the direction proposed (Table 1.3). Figure 1.2 shows the structural model graphically.

Table 1.1 Evaluation of measurement model

CONSTRUCT/ dimension/indicator		Weight	Factor loading	Composite reliability (ρ_c)	Average variance extracted
Experiential resources (first order reflective construct)				0.872	0.695
GENERALEXPERIENCE			0.805		
EXPORTEXPERIENCE			0.852		
Structure resources				n.a	n.a
STRUCTURE			1.000		
Competitive intensity (first order reflective construct)				0.841	0.641
INTENSCOMPET1			0.784		
INTENSCOMPET2			0.905		
INTENSCOMPET3			0.700		
LITERACY			0.612		
Export entrepreneurship (first order formative construct)				n.a.	n.a.
SPEED		0.462			
DEGREE		0.567			
SCOPE		0.673			
Export performance (second order formative construct)				*n.a.*	*n.a.*
SALES GROWTH	*FIV = 2.140*	*0.293*		*0.863*	*0.698*
Crev_2010			*0.787*		
Crev_2011			*0.897*		
Crev_2012			*0.834*		
MANAGER SATISFACTION	*FIV = 1.971*	*0.854*		*0.936*	*0.725*
SAT1			*0.885*		
SAT2			*0.809*		
SAT3			*0.913*		
SAT4			*0.823*		
SAT5			*0.831*		

n.a. not applicable

Table 1.2 Correlations between constructs

Construct	1	2	3	4	5
1. Competitive intensity	*0.800*				
2. Experiential resources	0.134	*0.833*			
3. Structure resources	0.290	0.119	n.a		
4. Export entrepreneurship	0.303	0.427	0.421	n.a	
5. Export performance	0.460	0.241	0.04	0.392	n.a

In the main diagonal are shown the square roots of AVE
n.a. not applicable

Table 1.3 Parameters from hypothesis tests

Hypothesis	B	t-value	Supported
H_1: Experiential resources – export entrepreneurship	0.383	1.934*	Yes
H_2: Structure resources – export entrepreneurship	0.321	2.886***	Yes
H_3: Competitive intensity – export entrepreneurship	0.211	2.074**	Yes
H_4: Export entrepreneurship – export performance	0.393	2.896***	Yes

Notes: *ns* not significant (one-tailed t(999) test)
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$
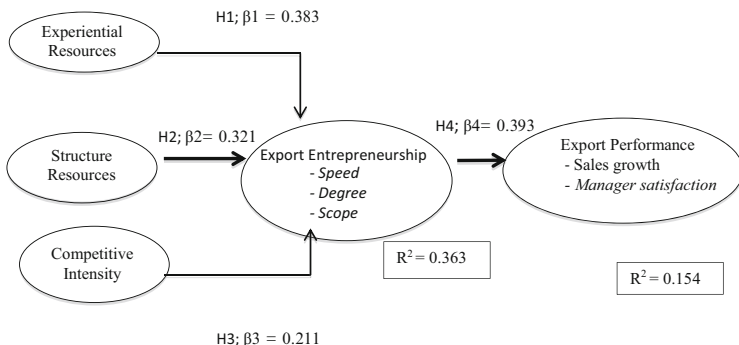
Fig. 1.2 Graphical structural model

1.6 Discussion and Conclusions

The conceptual model proposed has been validated. Export entrepreneurship is considered to be a process associated with those in charge of the export activity through which they decide when (speed), how (degree) and where (scope) the firm is going to develop its export activity. According to the basis of the RBV and the contingency approach, in this process both internal and external factors of the organization intervene. Among the internal factors, the resources associated with experience and structure are essential to drive the export entrepreneurship. Among the external factors, the industry's competitive intensity has an important effect on export entrepreneurship. The influences of these internal and external factors explain an export entrepreneurship variance of 36.3 % ($R^2 = 0.363$). Some implications arise from focusing on the relationships between the variables and taking the global model as a reference.

First, in accordance with the RBV, the resources of the export firm are drivers of export entrepreneurship. In this way, it is shown in this study how the resources associated with learning –experience– and the disposition of a specific structure –export department– in the export firm have a very positive effect on the organization's speed, degree and international scope, confirming H1 ($\beta1 = 0.383$; t-value $= 1.934$) and H2 ($\beta2 = 0.321$; t-value $= 2.886$). The disposition of these

resources offers a greater basis for the decision making, increasing the firm's orientation toward international markets (Ibeh 2003). Thus, the existence of an export department helps to formalize decision-making and increase the planning levels (Caruana et al. 1998). In this way, perceived export barriers are reduced, augmenting the predisposition to diversify markets (Ruzo et al. 2011). On the other hand, experience –both general and international– is a generator of learning processes in the export firm, either associated with the industry – general experience (Zou and Stan 1998) –or specifically in international markets –international experience (Fischer and Reuber 2003). General experience provides a fundamental basis to initiate internationalization movements -the fruit of organizational learning and the increase of managerial confidence in decision-making (Majocchi et al. 2005). This reinforces the planning level and reduces the levels of improvisation, decreasing the likelihood of making erroneous decisions in markets which are different to the domestic one (Nemkova et al. 2012). All this reinforces the export orientation, driving the degree and scope associated with export entrepreneurship (Ruzo et al. 2011). International experience is a generator of a specific learning linked to the export activity, providing valuable information to facilitate international positioning (Morgan et al. 2004). This reduces the perceived export risks and barriers, increases the firm's orientation toward external markets and drives its entrepreneurial spirit (Autio et al. 2000; Knight and Cavusgil 2004).

Secondly, according to the contingency approach, the factors associated with the environment in which the organization works influence the organizations' international entrepreneurship (Keupp and Gassmann 2009)). In this way, in the current research it is shown that the competitive intensity of the industry in which the export firm works is a direct and positive antecedent of export entrepreneurship, confirming H3 ($\beta3 = 0.211$; t-value $= 2.074$). This competitive intensity tends to increase the market dynamism, influencing the organization's strategic agility to adapt it to such changes (Zahra et al. 2000). It generates adaptations in the international marketing-mix program with the aim of satisfying the needs and desires of foreign consumers (Navarro et al. 2013). It also reflects a greater development of market-oriented behaviors (Kwon and Hu 2000; Cadogan et al. 2003), influencing the scope and degree of the organization's international orientation, given the greater need to seek and exploit business opportunities outside the domestic area (Mittelstaedt et al. 2006).

Thirdly, it is shown that there is a positive relationship between the level of entrepreneurship and the export result (growth of sales in the last 3 years and management satisfaction), confirming Hypothesis H4 ($\beta4 = 0.393$; t-value $= 2.896$). In this sense, it is recommendable for export firms to develop accelerated internationalization processes, although this must always be carried out with clear strategic guidelines, appropriately planning the times and modes of entering into the foreign markets (Acedo and Jones 2007). It is also advisable to develop market diversification strategies, expressed in a greater international scope of the organization, as this contributes positively to the export result (Navarro 2002; Ruzo et al. 2011). This will also be attained by a greater export orientation of the firm, which will mean a greater participation of international sales in the organization's total sales (Kuivalainen et al. 2012).

To sum up, based on the RBV and the contingency approach this paper significantly contributes to filling the broad gap which exists in the literature about export entrepreneurship. Specifically, this study shows that the level of the firm's export entrepreneurship depends on the resources available, as well as the contingency factors associated with the organization's external environment, such as those linked to the industry's competitive intensity.

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Chapter 2
Return Expectations from Venture Capital Deals in Europe: A Comparative Study

Maximilien Feider, Etienne Krieger, and Karim Medjad

Abstract The present comparative study is based on a survey conducted among the venture capital professionals of three major European countries, namely Germany, France, and the United Kingdom. It contributes to ongoing research on venture capital practices by linking theories on return expectations and perception biases to the European venture capital context.

Confirming prior empirical findings, our results highlight the important overconfidence biases prevalent in European venture capital, with almost 70 % of the respondents expecting their fund to do better than the average fund during the best venture capital vintage period to date.

Whilst this study does not determine whether the underlying causes of such biases differ from a country to another, it does show that unlike one might expect, cross-country differences in the venture capitalists' perception biases are surprisingly negligible. Whether this finding suggests that venture capital policies should be coordinated, if not conducted, at a European level remains to be clarified however, for the causes for such biases remain unclear and may vary from a country to another.

2.1   Introduction

In 2008, Medjad et al. conducted a study among French venture capitalists and entrepreneurs. They presented the study's participants with a hypothetical seed/early stage venture capital fund and asked them to indicate their best estimate of the future financial performance of the fund. Their research findings strongly suggested

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that both French entrepreneurs and venture capitalists had a performance perception that was "disconnected from reality" (Medjad et al. 2011).

The results notably revealed the respondents' tendency "to overestimate the notion of success and to underestimate that of failure." Whilst acknowledging the limited scope of their study (it included a sample of only 22 venture capitalists and 30 entrepreneurs in France), Medjad et al. were determined to further investigate this puzzling perception bias. They suggested extending the research to other European countries so as to explore if, and to what extent, this perception bias was a European bias that called for a European response.

This is the purpose of this study. Using the same methodology, it expands the geographical scope of this research to Germany and the United Kingdom and contributes to the existing venture capital literature in two areas, namely perception biases and country-based cultural differences (Venkataraman 1997).

A growing body of research supports the idea that investors are prone to perception biases and irrational decision-making (De Bondt and Thaler 1994; Barber and Odean 2011; Coval and Moskowitz 1999; Hong et al. 2005), notably overconfidence (Zacharakis and Shepherd 2001).

In contrast, financial decision-making biases are seldom addressed from a comparative point of view. Existing studies mostly examine cognitive biases in the context of a single country, but to the best of our knowledge, no other study to date has directly researched cross-country differences in venture capitalists' perception biases. This is a remarkable gap given that cross-country differences in venture capital markets are a rather well-documented and researched concept (Palacin 2008).

2.2 Cross-Country Differences in Venture Capital

2.2.1 Background

2.2.1.1 The Operation of a Typical Venture Capital Fund

If the venture capitalists chose their investments wisely and are able to achieve successful exits, the returns are split between General Partners and Limited Partners. In a typical arrangement, the Limited Partners receive 99 % of all the proceeds until their initial capital investment has been fully repaid[1] – with the remaining 1 % going to General Partners.

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[1] In many cases, the fund also returns previously agreed-upon interests to Limited Partners.

Once this threshold is passed, the splits go 20 % to the General Partners and 80 % to the Limited Partners.[2] The 20 % distributed to venture capitalists after the hurdle rate has been passed, are called "carried interest." This compensation scheme is generally thought to align the interests of the General Partners and the Limited Partners (Levin and Rocap 2013).

Additionally, venture capitalists receive a periodic[3] payment called the "management fee" calculated as a percentage of assets under management. The management fees typically range from 1 % to 2.5 % (Levin and Rocap 2013) and are meant to cover the venture capital firm's administrative, deal sourcing and legal costs (CalPERS 2014).
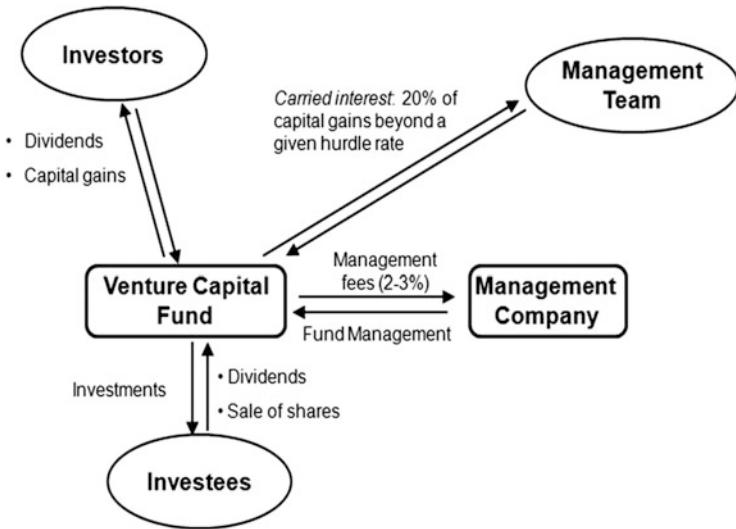
The operation of a venture capital fund

2.2.1.2 The Heterogeneity of Venture Capitalism

Even though US-style venture capitalism has spread to countries all over the world in the last decades and the number of international venture capital transactions has seen sharp increases (Aizenman and Kendall 2008), venture capital markets remain surprisingly local in many aspects.

In recent years, the idiosyncrasies and commonalities of different national venture capital markets increasingly attracted scientific interest. Indeed, a growing

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[2] Renowned venture capitalists with a great track record can receive a higher carried interest percentage (Hadzima and Bonsen 2014). Using a sample of 295 venture capital funds, Robinson and Sensoy (2011) examine the compensation structures in much detail.

[3] In most cases, the management fee is paid annually.

body of research now documents cross-country differences in venture capital markets. The institutional, legal and cultural environments as well as corporate governance systems are thought to notably influence the conduct of business (Groh et al. 2012).

The differences start with venture capital funds' organizational forms. In Anglo-Saxon countries, VC firms are mainly organized as limited partnerships, whereas in France and Germany they have different organizational structures with – traditionally – far more involvement of banks (Jeng and Wells 2000). Similarly, the provenance of the funding differs dramatically by country. In Anglo-Saxon countries, a much larger fraction of funds has historically been provided by pension funds (Jeng and Wells 2000; EVCA 2012).

Furthermore, important differences in management styles of General Partners in various countries have been documented. Jeng and Wells (2000) find that General Partners in Germany and Japan are not as actively involved in managing their investments as they are in the US.

There also appear to be important country-level differences in venture capital firm's investment behavior: empirical evidence suggests that Anglo-Saxon venture capitalists have a preference for convertible preferred equity securities, whereas venture capitalists from other countries prefer a variety of other instruments (Cumming 2008; Hege et al. 2003; Kaplan et al. 2007; Lerner and Schoar 2005).

Additionally, Schwienbacher (2004) finds important differences in syndicate size in US and European venture capital investments.

Finally, Stolpe (2003) argues that venture capital firms in the US usually focus on narrow fields of technology whereas European venture capitalists have a broader investment focus and a more opportunistic investment behavior.

Clearly, venture capital markets around the world are less homogeneous than one might expect. Many potential causes for differences in country-level VC behaviors and attitudes have been brought forward. For example, Hege et al. (2003) suggest that many country-level idiosyncrasies can be explained by the different stages of maturity of venture capital financing (i.e., venture capitalists behave differently in more mature venture capital markets than they do in less mature markets). Cumming et al. (2010) advance that cross-country differences in legality (such as legal origin and accounting standards) significantly influence the governance structure of venture capital investments.

2.2.2   The Relevant Markets

Below is a brief overview over select national venture capital markets. We first focus on the US venture capital market, for it is the most mature and by far largest venture capital market of the world. We then zoom in on the European venture capital markets covered by our survey, namely in France, Germany, and the United Kingdom.

These countries have been selected because they have significant similarities between them (thus allowing for direct comparisons) and at the same time present sufficient heterogeneity to create interesting opportunities for research.

2.2.2.1 Venture Capital in the United States of America

The United States are the World's most mature and largest venture capital market. With total venture capital investments of $21.7bn, 3,826 deals and over $19bn raised by 202 funds in 2012, this highly competitive market has historically outperformed all others. Indeed, a report by the French Venture Capital and Private Equity association, AFIC, finds that US venture capital has historically outperformed European Venture capital by an average of 13.4 %[4] (AFIC 2013). In recent years, the performance gap between European and US VCs had narrowed but the US venture capital industry is still more profitable[5] (EVCA 2012). In their report on the profitability of venture capital investment in Europe and the United States, Rosa and Raade (2006) also find that US venture capital funds return cash sooner than their European counterparts, indicating that their returns are not only higher, but also are realized faster.

A particularity of the US venture capital market is the importance of institutional investors. Bottazzi and Da Rin (2002) note that institutional investors (such as pension funds) are by far the largest contributor to venture capital funds in the US whereas they account for much lower fractions of committed capital in other countries. It has been argued that the stability of the share of institutional investing in the US can be seen as a sign of the market's maturity (Bottazzi and Da Rin 2002).

2.2.2.2 Venture Capital in Europe

With regards to its venture capital industry, Europe has been considered as an emerging market until recently (Hege et al. 2003). The €3.2bn invested by Venture capital firms in Europe in 2012 still seem minuscule compared to the €19.8bn[6] invested in the United States (EVCA 2013; NVCA 2013).

The small size of the European venture capital market may be explained by its underperformance: unsatisfactory risk-reward ratios are often cited as the main reason for practitioners' hesitation to enter early-stage financing (Hege et al. 2003). Groh et al. (2012) argue that the tendency for European venture capital activity to lag other countries and regions is the result of shortcomings in a number of areas such as economic activity, entrepreneurial culture, depth of a capital market, taxation, investor protection and corporate governance, and the human and social environment.

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[4] 14.3 % for the US against 0.9 % for European VCs.

[5] 3.6 % for the US against −1.1 % for European VCs.

[6] $27.1bn., assuming an exchange rate of 1 U.S. dollar = 0.73 Euros (December 23, 2013).

Given the lack of private and institutional investment in early stage companies, European governments have become increasingly involved. The EVCA, the European Venture Capital Association, notes that government agencies contributed 40 % of capital fundraising in 2012 – making them the biggest VC contributors for the fourth consecutive year (EVCA 2012).

However, European venture capital markets are far from homogeneous, not only in terms of capital intensity but also in terms of sophistication, the United Kingdom being often cited as the most advanced of the European markets (Groh et al. 2008, 2012).

2.2.2.3 France

The foundation of venture capital in France was laid in the 1950s, when the French government created a network of local development agencies (Sociétés de Développement Régional) whose aim was to collect local savings and invest them in local small and medium-sized enterprises.

Today, France counts among the biggest European markets for venture capital. In 2012, it placed third in Europe, raising €721 million for 202 deals (Rooney 2013). The French market is thought to offer a strong and sophisticated framework for VC transactions as well as a consistent deal flow of high-quality, technology projects (Groh et al. 2012).

Nonetheless, France's venture capital firms have on average underperformed stock markets. With an average IRR of −0.9 %, France's VC returns lag far behind those of the UK or the US (AFIC 2013).

France ranks only 14th in the Global VCPE Country Attractiveness Index. In specific, venture capitalists and entrepreneurs bemoan France's rigid and inflexible labor practices, unfavorable legislations for investors, less developed stock markets and culture of risk avoidance.

2.2.2.4 Germany

Like France, Germany has a long tradition of government support for the business sector that dates back to the post-World War II programs dedicated to rebuilding the German industry (Harrison 1990).

Today, Germany is Europe's second largest Venture capital market after the UK according to Dow Jones VentureSource. In 2012, German venture capital firms raised €822 million[7] for 189 deals (Rooney 2013). Bank-dependent and public venture capitalists still have an exceptionally large market share in Germany

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[7] The German Venture Capital Association reports only €520 million of venture capital investments. This is probably due to terminological differences as to which transactions qualify as venture capital investments.

(Tykvová 2004). Market development is hampered by a culture of risk-avoidance (Jeng and Wells 2000) as well as bureaucratic hurdles to new company creations.

Moreover, German venture capital firms have underperformed in recent years: with an IRR of −1.7 % in 2012, Germany does even worse than its European neighbors (AFIC 2013). Nonetheless, as Western Europe's most populated country and leading economy, Germany holds many promises for the venture capital industry.

2.2.2.5 United Kingdom

As a reaction to a small firm finance gap, a venture capital industry consisting of both public and private sector initiatives emerged in the UK in the early 1960s (Mason and Harrison 1991).

In 1980, a junior stock market (the Unlisted Securities Market) was created in London. Simultaneously, the government shifted its emphasis to tax-based incentives, starting with the Business Expansion Scheme (Pierrakis and Mason 2008). These measures were highly successful and the industry expanded rapidly: the number of venture capital funds in the UK grew from less than 30 in 1979 to over 150 in 1988. The investments grew even faster: from £20 million in 1979 to over £1 billion in 1988 (Mason and Harrison 1991).

Furthermore, the UK benefits from its shared culture and tight relationship with the US: practitioners report that American investors contribute an important part of the venture capital invested in the UK (Mance 2013).

Nowadays, the UK is the largest and most sophisticated European market for venture capital with €1.4 billion raised for 295 deals in 2012 (Rooney 2013). In the Global VCPE Country Attractiveness Index, the UK ranks second only to the US (Groh et al. 2012). In particular, London and Southern England are thought to have significant potential for start-up investments (Marston et al. 2013). The trade association BVCA reports that 2002-vintage venture funds delivered IRRs of 3.6 % (BVCA 2013). The UK venture capital industry thus did rather well in comparison to its European neighbors.

2.3 The Survey: Data and Methods

2.3.1 Sample

An online, multi-national study entitled "Venture Capital Performance Survey" was conducted amongst venture capital professionals with registered offices in France, Germany and the United Kingdom.[8]

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[8] Contact details were primarily obtained from the British Venture Capital Association (for the UK), the "Bundesverband Deutscher Kapitalbeteiligungsgesellschaften" (for Germany) and the "Association Française des Investisseurs pour la Croissance" and "BPI France" (for France).

In line with the survey conducted in France by Medjad et al., only venture capital professionals working for funds involved in seed and early stage financing have been contacted. The sample includes a highly diverse group of venture capital professionals of all ages and backgrounds working for funds with a large range of different sectorial foci.

The survey sample data is broken down in the chart below:

Country	Number of invitations sent	Completed surveys (valid)	Response rate
Germany	276	31	11.2 %
France	166	39	23.5 %
UK	197	23	11.7 %
Total	**639**	**93**	**14.5 %**

The response rate achieved is considerably better than the "10–12 % typical for mailed survey to top executives" (Hambrick et al. 1993, p. 407) and it fares at a level that is generally considered appropriate by the standards of cross-national research (Harzing 1999).

2.3.2   Survey Questionnaire: Construction and Description

Except for a few minor formal changes, the survey was based on a tri-lingual version in English, German and French of the questionnaire used by Medjad et al. in their survey of the French venture capital market. Accordingly, survey participants were presented with a hypothetical fund. The original text, as submitted to the survey participants, is shown below:

Assume you are a manager of a venture capital fund.

- *This fund is operated according to standard practices in terms of management fees and bonuses.*
- *You have $32 million, net of management fees, to invest in start-up companies (venture capital stage).*
- *The duration of the fund is 10 years, and the $32 million are invested during the first 4 years of operation.*

On average, the fund:

- *Has to review 100 business plans to make 1 investment (this ratio is consistent with standard practices).*
- *Invests $1.6 million per company in a total of 20 companies.*
- *Owns each company's stocks for a 6 years period (holding period).*

You make two kinds of investments:

- *In "standard" companies, with standard risk and return on investment.*
- *In "outstanding" companies with high risk and high return on investment.*

The return on investment is expressed as a money-multiple of the initial investment, e.g.

- *"0" means that your investment resulted in a full loss,*
- *"2" means that your initial investment is doubled ... etc.*

After having asked the respondents to assess the number of "outstanding" and "standard" deals per year (out of a total of 20 deals), the survey went on to ask the respondents to predict the exit multiples probabilities of these deals. The exact formulation was as follows:

Please, indicate below your estimate of the likely performance of a "standard" deal and of an "outstanding" deal.

1. "Standard" Investment

Please indicate the probability of the financial outcome for a "standard" deal (total = 100 %). The first line indicates the probability leading to a money-multiple of 20. The last line indicates the probability leading to a net loss (zero-multiple).

20	...	%
10	...	%
5	...	%
2	...	%
1	...	%
0.5	...	%
0	...	%
Total	100	%

The total sum of probabilities for this question had to add up to 100 %. The exact same exercise was repeated for the venture capitalists' "outstanding" investments.

2.4 Results

The table below summarizes the money multiple (TVPI, or "Total Value To Paid-in Ratio") and IRR return expectations for Germany, France and the United Kingdom.

Summary of descriptive statistics

Summary Statistics for ...	Germany	France	UK	Average
Proceeds from "standard" deals (M$)	53.4	54.9	36.1	49.7
Proceeds from "outstanding" deals (M$)	40.1	29.2	64.8	41.4
Total proceeds (M$)	**93.5**	**84.0**	**101.0**	**91.1**
Net gain on investment (M$)	53.5	44.0	61.0	51.1
Return on investment (%)	**15.2 %**	**13.2 %**	**16.7 %**	**14.7 %**
TVPI (money multiple)	**2.3**	**2.1**	**2.5**	**2.3**
Standard deviation of TVPI	0.9	0.9	1.1	1.0
Standard deviation of return (%)	**6.0 %**	**5.9 %**	**6.9 %**	**6.3 %**
Marginal return/Marginal risk	5.0	6.0	6.8	5.8

We observe differences in expected portfolio returns, with venture capitalists from the United Kingdom expressing the highest average expected IRR (16.7 %), followed by Germany (15.2 %) and France (13.2 %).

As shown in the graph below, however, this is a mere variation in terms of degree but they do share the same bias, for in every case, their average return expectations are much higher than what can realistically be expected in their respective markets. According to the EVCA (2012), European venture capital presented an average pooled TVPI of 1.68 (the equivalent of an IRR of approximately 9 %) during its best vintage period to date (1990–1994).

In these results, one might see the confirmation of the impression that European venture capitalists' return expectations are influenced by US-style investment outcomes which have historically averaged an IRR of 14.3 % (AFIC 2013).

TVPI (Exit Multiple)	Germany	France	United Kingdom	EU Average
☐ Expected TVPI	2.34	2.10	2.52	2.28
■ Actual(net) TVPI	0.92	0.96	1.19	1.05
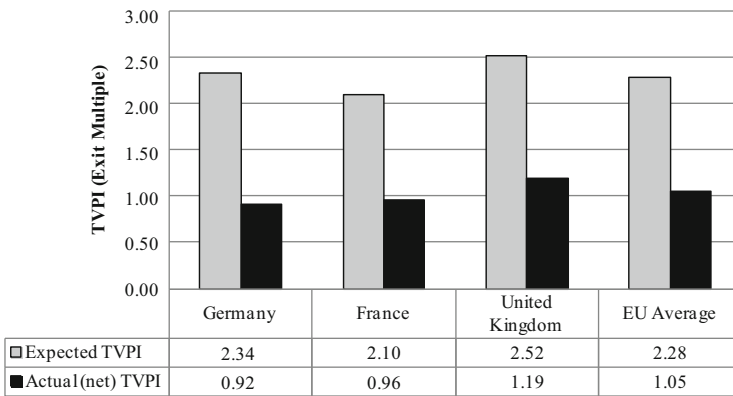
Comparison between real and expected TVPI results per country[9]

Further, the survey data allows gaining a granular understanding of the origination of perception biases: in our survey, return expectations result from the respondents' expected outcomes for "standard" and "outstanding" deals as well as the number of deals in each category. Respondents from different countries could potentially predict different outcomes for either one of these investment types. This would explain cross-country differences in return expectations.

However, our data suggest that this is not the case. As shown in the graph below, respondents seem to have quite homogeneous understandings of, and expectations for the two deal types in which "standard" deals yield an average gross return of 15.0 % (10.8 % net) and "outstanding" deals yield an average gross return of 25.7 % (21.1 % net). This is all the more surprising, as both concepts are somewhat vague.

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[9] The real performance data and exit multiples were retrieved from Thomson Reuters' ThomsonOne database. The probability distributions of the exit multiples could not be retrieved from ThomsonOne due to inherent survivorship biases. We therefore used data from Weidig and Mathonet (2004) which in turn build upon Cochrane's (2005) work.
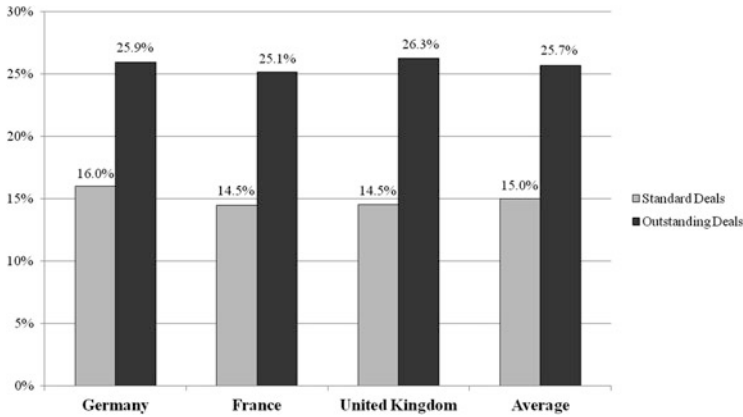
Gross return expectations for standard and outstanding deals

The figure below provides further evidence for the homogeneity of return expectations within the participating countries. We observe that the respondents' expected returns per deal type (as shown above) result from fairly similar expected exit multiple probability distributions. Furthermore, it becomes apparent that respondents attribute very different probability distributions to "standard" versus "outstanding" deals, in that "standard" deals are expected to have both a lower failure rate and result in a lower number of high exit multiples.
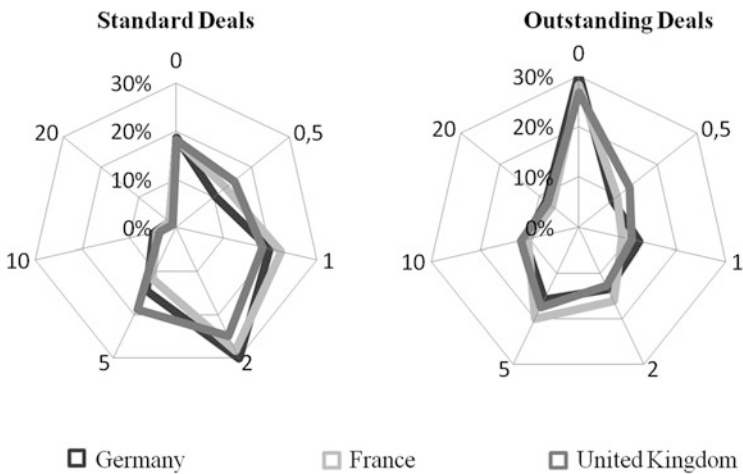
Expected TVPI (money-multiple) distributions by deal type

Since country-based differences in return expectations do not result from differences in the return expectations of "standard" and "outstanding" deals, they must

result from differences in the expected number of standard and outstanding deals. As shown below, respondents in the United Kingdom typically forecast a much higher number of "outstanding" deals than their French counterparts.
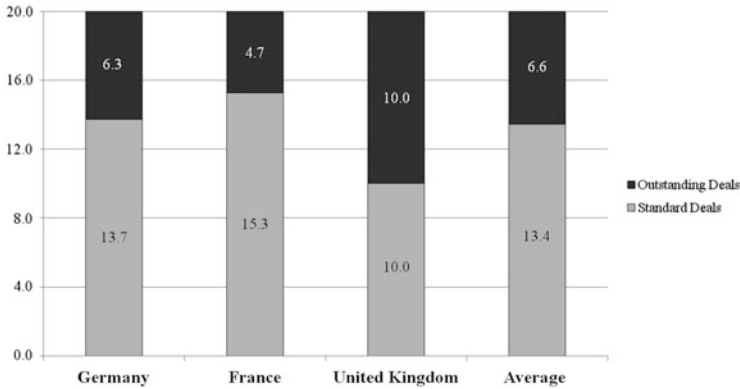
Average numbers of standard and outstanding deals per country

Since outstanding deals are thought to yield higher returns on average, respondents who expect a larger number of "outstanding" deals, tend to forecast higher returns for their whole portfolio.

The differences in average portfolio compositions (the split between "standard" and "outstanding" deals) give us important information about the nature of the deals venture capitalists tend to make in each of the participating countries. We observe that French venture capitalists appear to be more "cautious," expecting a larger number of "standard" deals, and fewer high risk-high reward "outstanding" deals. Whether this is due to the investment preferences of French venture capitalists, or to a lower number of available "outstanding" deals (i.e. the existing startup landscape) is a subject for future research.

Finally, we observe that, while the average return expectations vary, the relative standard deviations[10] are very similar in all participating countries. They range from +/−40 % in France to +/− 43 % in the United Kingdom. These standard deviations can be interpreted as the averages of the volatilities that the individual respondents expect for their portfolios. Hence, venture capitalists in all three participating countries seem to foresee very similar volatilities (and thus risk) for their respective portfolios.

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[10] The relative standard deviation was computed by dividing each country's standard deviation by its respective sample mean.
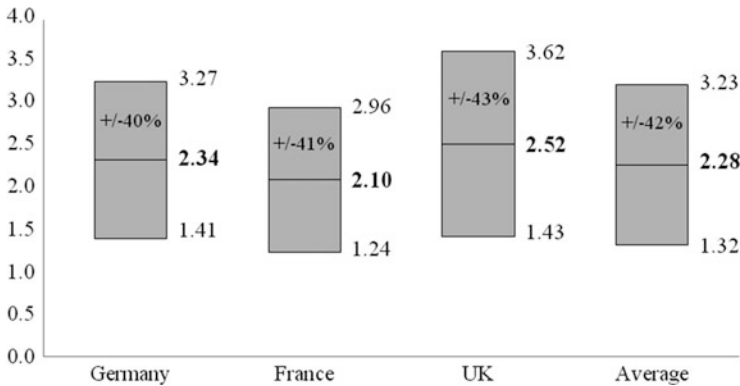
TVPI averages and (relative) standard deviations by country

The assumption that investors' expected returns are higher than the real returns of venture capital funds is supported by the results. As predicted, venture capital professionals expect to achieve returns that, on average, would not even hold in the best vintage period to date.

The results summarized in the figure below yield several remarkable findings. Most importantly, venture capital professionals do not appear to significantly overestimate the probability of middle-to-high TVPI outcomes (5x or more). This discovery is rather puzzling, especially when compared to the existing literature on general investor over-confidence biases. While this result may partly be explained by differences in research methodologies used, such as the different time horizons analyzed and samples from different geographic areas,[11] the observed trends are in all likelihood too large to be accounted for by these factors alone.

The second noteworthy observation is that the participants overestimate the probability of middle-to-low TVPI outcomes (between 0x and 2x).

Further, the survey respondents vastly underestimate the danger of full losses: on average, they predicted that 22.5 % of the investments would end up as total losses against a real-life value of close to 30 % found in Weidig and Mathonet's (2004) study.

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[11] Lacking high-quality European data sets, Weidig and Mathonet (2004) used data from 5000 direct investments from the US rather than Europe for their analysis.
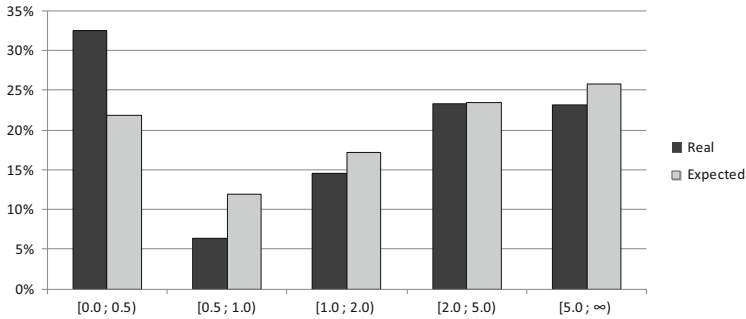
Comparison between real and expected direct investment TVPI outcomes

2.5 Discussion

Our empirical findings provide strong evidence for the existence of a general overconfidence bias within the venture capital community. While this result was foreseeable, the extent of the overconfidence bias is striking: almost 70 % of the respondents expect their hypothetical fund to do better than the average fund TVPI (money-multiple) during the best vintage period to date (1990–1994).

Surprisingly, the analysis yielded findings suggesting that venture capitalists do not significantly overestimate the frequency of high TVPI outcomes. This result is quite remarkable, as, it allows a significant refinement of the prevailing claim – brought forward by Medjad et al. in the case of the French venture capitalist market – that venture capital professionals have a strong propensity to both overestimate the probability of success and to underestimate that of failure. In fact, they mainly seem to do the latter.

As pointed out at the outset, European venture capital firms operate in a heavily politicized environment that is both regulated and in many cases supported and subsidized by local and national governments. The reason of this important public involvement lies in the common perception that a buoyant venture capital industry is a driver of economic growth and innovation (Koschatzky 2000; Bottazzi and Da Rin 2002; Lerner 2002) as well as an accelerator of product and market development (Hellmann and Puri 2000).

Given the policymakers' zeal to support the development of venture capital, what lessons does this study hold for regulators?

First, our findings shed a light on a blank spot, namely the frighteningly high failure rates of innovative startup ventures. The adverse effects of such outcomes on entrepreneurs and investors can be substantial. Ucbasaran et al. (2013) point out that the aftermath of business failure is often fraught with psychological, social, and financial turmoil. Governments should thus provide dedicated structures to cushion the entrepreneurs and investors against the immediate effects of business failure. Such improvement of the safety net for fallen entrepreneurs could greatly increase

the appeal of entrepreneurial ventures, and given the relative homogeneity of the rate of start-up failures in Europe, this seems to be an area where the European Investment Fund could bring important insight.

Second, to turn to the central finding of our study, how should the overconfidence of the British, French and German venture capitalists be addressed?

Answering this question requires a prior understanding of the potential harmfulness of such bias.

In the previous study limited to the French Venture capital market, Medjad et al. (2011) assumed that "that the underperformance of the French venture capital [was] inevitably compounded by a gross misconception of success and failure by its actors." Yet, this comparative study shows that this assumption does not hold. Whilst less spectacular than other findings, this is perhaps the most important finding of this study. Assessing cross-country differences in the levels of overconfidence, we found that France was, by far, the country with the lowest level of venture capital investor overconfidence both in absolute and relative terms. The United Kingdom sample exhibits the highest absolute levels of overconfidence, while Germany ranks first in relative numbers. If overconfidence was detrimental, both the venture capital industries of Germany and of the United Kingdom should fare much worse than the French one and this is not the case.

In sum, there is no evidence supporting the assumption that curving the overconfidence of its actors would benefit the venture capital industry. In fact, a certain level of overconfidence may even be beneficial for fund performance, because increased risk-taking facilitates the emergence of entrepreneurs who exploit new ideas (Bernardo and Welch 2001). Does this mean that this bias should then be neglected, or even encouraged? And by whom? From an ethical point of view, the answer is far from straightforward, to say the least.

2.6   Conclusion

The results of this comparative study beg for further research.

First, the inclusion of more countries both from Europe and from other continents would make the cross-country analyses more robust. Further research could thus use more extensive data samples from a larger number of countries to test whether the relationships found in the present study prevail in other national and cross-country contexts.

Second, this study confirms that many European venture capitalists' return expectations are possibly influenced by the exceptionally high exit returns achieved by certain Silicon Valley companies. Therefore, the inclusion of US venture capitalists' responses into a survey sample would be particularly interesting and could further the research on the differences between the venture capital industries in Europe and the United States.

Thirdly, this study only recorded the respondents' estimates of outcome frequencies at a single point in time. Arguably, the present economic conditions in Europe are more likely to nurture pessimistic views, but until clear evidence is produced, the possibility that overconfidence may be a temporary mood rather than

a lasting state of mind has not been definitely ruled out. Future studies should thus use longitudinal and time-lagged research designs to test the findings of this study and explore if they hold in the long run.

Finally, the question whether – and to what extent – a less national and more European approach of venture capital is justified is not fully answered by our study, which highlights significant similarities in terms of overconfidence, but does not identify the underlying causes of such bias and hence, does not determine the extent to which they may differ from a country to another. The European Investment Fund and the European Venture Capital Association may be important contributors to this necessary clarification.

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Chapter 3
Inter-firm Cross Border Co-opetition: Evidence from a Two-Country Comparison

João J.M. Ferreira, Mário L. Raposo, and Cristina I. Fernandes

Abstract The theory and research existing on relationships between competitors concentrates on either competitive relationships or cooperative relationships and broadly argues that one relationship type harms or threatens the other. There has been little empirical research on firms simultaneously involved in and benefitting from cooperation and from competition even though such cases demonstrate both relationship types need simultaneously emphasising. This article aims to ascertain just how firms interrelate with their competitors in terms of the cooperative behaviours in effect when agreeing and implementing innovation based cooperation agreements as well as their respective influences on performance. The empirical data was obtained from a sample of Iberian border firms (Portugal and Spain) belonging to different sectors of activity. The results reflect significant differences in effect between firms from the two different countries as regards co-opetition and competition for innovation and the respective resulting performance levels. Portuguese firms display a positive relationship between the various types of innovation and the modes of cooperation with clients and competitors (co-opetition). In the case of Spanish firms, the effects of cooperation on innovation prove negative. Furthermore, in terms of financial performance, we find this is influenced neither by the means of cooperation nor by the means of innovation and in both countries.

3.1 Introduction

How feasible is it to foster competitiveness and economic growth in peripheral regions through establishing networks of cooperation (and competition) among firms located in such areas? Are firms located in regions on either side of a particular border able to build up and maintain economic relationships and in what way do firms get involved in setting up the aforementioned networks? Where yes, in what way do the forms of cooperation/co-opetition influence innovation? Highlight how firms located in this type of region experience

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difficulties in attaining success in the marketplace due to shortcomings in local factors of production. Competition is weak, access to key markets incurs high transaction costs and the local client base is too small to leverage economies of scale and all in turn hindering the introduction of innovations. Such arguments clearly follow in the trail of the findings of Jorde and Teece (1990) in their approach to commercialising innovation and how such processes depend on the way the surrounding economic system articulates key factors and establishes an interactive and dynamic system of learning and swapping information. Economic growth in such regions depends greatly on the way in which firms, the fundamental unit of economic activities, manage to obtain the resources that they have available and how they seek out the best possible combination in order to ensure their own survival and business success. According to Andresen (2011), the efficiency obtained in the allocation of these resources derives from a complex set of institutional, social and cultural factors as well as the presence of the appropriate strategies. Smith (2003) refers to the existence of a relationship between aggregated firm resources and the entities capacity for involvement in international cooperation agreements and highlighting the moderating role of competitive strategy. Resource based theories argue that a firm's performance depends on its ability to combine different resources types into products and services creating value to different market segments (Hunt 2000; Homburg et al. 2002; Wagner and Johnson 2004; Björn et al. 2009). Relationships are very often deemed potential resources. Björn et al. (2009) state that the resource perspective opens up an understanding as to how relationships with some external actors are more important than others to the firm. Inspired around the terminology of client and supplier management, certain relationships are key while others are not. Deitz et al. (2010) testify to the distinct effects of resource complementarity and trust on the stability of joint ventures and other cooperative relationships. In recent years, many firms have taken up various types of cooperative agreements as a strategic response to the uncertainty driven by rising levels of global competition, the emergence of new markets and rapid technological change (Deitz et al. 2010). Under such circumstances, it becomes difficult for individual firms to gain access to all the resources necessary to developing and sustaining competitive advantages while simultaneously attempting to construct the next generation of advantages (Dyer and Singh 1998; Deitz et al. 2010). As such, previous research has consistently associated the presence of strong inter-organisational relationships with a series of critical results including better innovation, access to markets, the reduction of costs and higher levels of financial performance (Cannon and Homburg 2001; Rindfleisch and Moorman 2001). Despite a sharp increase in the number and forms of cooperative business relationships, researchers have also noted that such agreements are very often characterised by high rates of failure and subsequent participant dissatisfaction (Park and Ungson 1997; Deitz et al. 2010). The conduct and performance of a firm does not only depend on endogenous factors (Lundberg and Andresen 2011), but also on their incorporated relational network (Gulati et al. 2000), such as the relationships making up the context of the transactions taking place (Easton 1992). The importance of the prevailing business context to firm development has

also been emphasised in various research projects (Håkansson and Snehota 2002). Research and development (R&D) based cooperative relationships have been identified as a core factor for explaining the differences in levels of innovation and not only between firms but also between regions (Fritsch 2004). Cooperation between competitors is analysed and discussed in the literature as advantageous within a perspective of combining and deploying the resources and capacities of firms actually in competition with each other (Bengtsson and Sören 2000). This article proposes that competitors may be involved in both cooperative and competitive relationships with each other simultaneously and benefiting from each facet and therefore suitable emphasis should be placed on both the cooperative and competitive relationships ongoing between firms. Hence, it proves relevant to ask a second question: just how is it possible to combine cooperation and competition into the same relationship and just how might such circumstances be appropriately managed? Co-opetitive relationships are complex to the extent that they contain two different diametrically opposed logics of interaction (Bengtsson and Sören 2000). Competing actors are involved in relationships that on the one hand inherently generate hostility due to the contradictory interests while, on the other hand, there is the facet of friendship deriving from shared interests. These two logics of interaction are in conflict with each another and, according to Bengtsson and Sören (2000), should be appropriately hived off so as to bring about a cooperative relationship. The objective of this study is to explore how firms engaged in cooperation agreements actually cooperatively engage with their competitors – what we henceforth refer to as co-opetitive relationships, at the point of undertaking such innovation inspired relationships. Our findings point to how both relationships coexist and are of strategic importance to the management of participant firms.

The article is structured as follows: after this introduction, section two contains a review of the literature on cooperation, competition and co-opetition in conjunction with the different perspectives on the theme. Section three details the methodology, sample and analytical methods adopted while section four sets out and discusses our results and findings before closing with our key conclusions and their limitations in addition to suggestions for future lines of research.

3.2 Literature Review

The agreeing of cooperation agreements (international in scope) enables firms to boost firm levels of competitiveness (Li and Zhong 2003). According to the latter authors, some empirical research conclusions do highlight how dispersed R&D activities are susceptible to empowering firms to raise their competitiveness levels in comparison with centralised R&D operations given they open up the opportunity both to leverage scientific inputs from the host countries and to reduce the uncertainties inherent to non-familiar business environments. However, a different explanation for the growing number of these international scale cooperation

agreements was put forward by Narula and Hagedoorn (1999). They argue that the fact few firms hold the resources necessary to duplicate their chains of value in different locations drives them into greater cooperation. They furthermore refer to the role of public sector involvement through support systems impacting on the willingness of firms to participate and engage in cooperation agreements beyond their own national borders. In the European Union, for example, many financing schemes explicitly require firms to undertake such cooperation in order to access resources for R&D and innovation projects.

Against a backdrop of hyper-competition, firms seek to develop the skills and capacities bringing sustainable competitive advantages and, consequently, and however contradictory such might seem, should seek cooperation out above competition (Mintzberg and Quinn 1991; Porter 1998; Mention 2011). The search for competition among competing firms tends to prove positive given the approach avoids hyper-competition and pre-empting the kinds of crises caused by low cost competition or price-wars negatively impacting across the entire industry.

The search for positioning at any cost, ferociously competing, drives all firms to financial exhaustion and leaves them intellectually unprepared and extremely vulnerable to both oncoming waves of innovation and new market competitors (Mintzberg and Quinn 1991).

To better formulate horizontal strategies, firms need to identify interrelationships between all competitors across multiple dimensions with potential and competitive impact and seeking out different standards and forms of interrelationship (Porter 1980). These mutual relationships may reveal early indicators of the emerging presence of new competitors and furthermore assist the firm in processes of self-identification. Above all, the possibility of advantages and earnings and even the need to ensure one's own business survival are factors that in themselves explain and justify organisations seeking such interrelationships and overcoming fears of broadening their range of competitors.

Competitors convey an important factor in studying cooperation as organisational strategies should be based on the possible and feasible moves that competitors might come to take. This is a finding that includes arguments from the game and transaction cost theories (Lado et al. 1997; Quintana-García and Benavides-Velasco 2004; Ritala and Hurmelinna-Laukkanen 2009). Ideas developing around issues stemming from game and resource theories provide evidence as to just why co-opetition may prove more profitable than mere competition between non-competitor firms and, in particular, the reason such may prove profitable in relation to the returns on innovation related activities (Brandenburger and Nalebuff 1995; Dussauge et al. 2000; Tether 2002; Rusko 2011).

Cooperative and competitive relationships are apparently located at the extreme ends of the spectrum of strategic relationships and alignments. Nevertheless, we may consider the agreements and compromises reached within the framework of competition and cooperation while also highlighting the limitations and advantages of either adopting one or the other in comparison with combining them into strategic alignments. As a result of combinations of cooperative and competitive behaviours, the various options and decisions made within the framework of a

strategic alliance may be identified and differentiated (Abdallh and Wadhwa 2009; Bengtsson and Kock 2000): relationships in which cooperation is predominant, relationships in which competition prevails as well as those in which both competition and cooperation coexist, termed here co-opetition.

According to these perspectives, competitors are occasionally placed in positions resulting in positive sum games thus to the benefit of all participants (the game theory approach). In addition, competitors may sometimes hold similar knowledge and shared market knowledge that fosters and encourages such cooperation (the resource based approach). Furthermore, from the transaction costs perspective, co-opetition is deemed an extremely risky deal as competitors have individual business incentives that may result in opportunistic and free-rider type behaviours (Park and Russo 1996; Hakansson and Ford 2002; Quintana-García and Benavides-Velasco 2004). This perception of high risk levels might prove an obstacle to cooperation between competitors (Arranz and Arroyabe 2008). Accordingly, some authors have suggested co-opetition may not prove a strategy appropriate to the production of future innovations (Nieto and Santamaria 2007; Ritala and Hurmelinna-Laukkanen 2009).

The term co-opetition was popularized by Brandenburger and Nalebuff (1995) who argue that for any business to turn in a good performance, it is not necessary for another to turn in a poor performance and thereby end up in bankruptcy. Within this framework, we certainly not only need to consider the competitors but also the clients, suppliers as well as other complementary actors. They maintain that a competitor is actually any actor driving consumers to value a product less while the complementary actors are those making them raise the value placed on a particular product.

The empirical studies concentrating on the connection between the different R&D partnership types and innovation performances put forward evidence that cooperative partnerships between competitors differ from other partnership types aiming to foster innovation. According to Ritala and Hurmelinna-Laukkanen (2009), these studies also produce different results as regards the type of innovations produced under regimes of co-opetition as various studies come out in favour of the positive sum vision and find that cooperation between competitors serves to create more completely new products than cooperation between non-competitors (Quintana-García and Benavides-Velasco 2004; Tether 2002). Furthermore, Belderbos et al. (2004) conclude that R&D cooperation between competing firms also facilitates the search for incremental efficiency gains. Nevertheless, Nieto and Santa-maria (2007) arrive at a contradictory position suggesting that cooperation between competitors was the least profitable means of producing highly innovative breakthroughs due to perceptions of the risk of opportunist behaviours and a lack of confidence between rivals. However, as this study surveyed a manufacturing sector that primarily included low technology firms among which co-opetition related innovation is neither particularly common nor as beneficial as in high-technology sectors (Arranz and Arroyabe 2008; Tether 2002; Ritala and Hurmelinna-Laukkanen 2009).

Within this context, the relationship between cooperation and competition may take on different forms depending on the prevailing levels of cooperation and competition (Bengtsson and Sören 2000) and the type of partners involved. From the perspective of Belderbos et al. (2004), cooperation with competitors and suppliers focuses on incremental innovations and improving the productivity performance of firms. Additionally, cooperation with universities and competitors proves fundamental to advancing with innovations resulting in the sale of products genuinely new to the market and thereby boosting firm growth rates. Still furthermore, clients and universities are important sources of knowledge for firms seeking radical innovations that facilitate the expansion of innovation based sales in the absence of formal R&D cooperation.

From the perspective of Ingram and Yue (2008), competition is an important mechanism regulating development in contemporary societies. Not only does competition stimulate self-perfection but it also fosters cooperation that does not necessarily compromise social efficiency. They also propose that understanding the coexistence of competition and cooperation is crucial to attaining a better grasp of the variety of empirical phenomena that range from technological innovation to institutional change. Analysis of competition studies does demonstrate that cooperation and the relationships between competitors represent facets frequently overlooked in the literature.

The cooperation paradigm, seen as an alternative approach, was first proposed in the late 1980s (Contractor and Lorange 1988). They found that in accordance with this paradigm, the business world becomes made up of complex and developed networks of relationships and stimulated by strategic cooperation. Emphasis is thereby placed on cooperative interdependence based on the awareness that organisations are able to boost performance through complementing their own resources, skills and capacities. Instead of seeking to establish advantages in relationships with other firms, a key foundation for the competitive paradigm, these organisations seek out mutual benefits and foster positive interdependence. They also add that the main implication of the cooperative paradigm is that, despite encouraging a game where the result is mutually beneficial, firms do actually obtain gains through this shared dependence on other organisations. In this case, firm performance positively relates to the performances attained by other firms. The emphasis on mutual benefits is the main strength of this paradigm and leads to firms exploring the scope for positive sum games. The perception of cooperation does not only result from the economic benefits as there is a shared belief in a process of social exchange, compromise, cooperation, trust and feeling of community.

The emergence of the co-opetitive approach takes place within a context of cooperation out of the convergent interests in the structures of each firm, thus establishing a clear trade-off between competition and cooperation (Padula and Dagnino 2007). These authors define co-opetition as a structural game in which the actors interact across partially convergent bases and overlapping interests. Thus, an analytical approach may be built out of the assumption that co-opetition shares practically the same origins of cooperation given that both depart from the principle

of seeking out shared interests. Nevertheless, the problem remains as to whether or not the common gains are then proportionally distributed.

Competition is a relationship based upon competing for dominance. This results in firms striving to attain positions of higher performance generating competitive advantages over other firms through altering and manipulating the structural parameters of their industry to their own benefit (Porter 1985) as well as the development of distinctive skills and abilities that prove hard to imitate (Barney 1991). In the case of firms adopting competitive behaviours, the risk of learning the hard way looms alongside efforts not only to maximise the absorption levels of distinctive skills and competences but also to protect internal competences from the competition (Kale et al. 2000). From another perspective, competitive behaviours may assist firms in striving to attain greater productive efficiency and returns, fostering creativity and innovations in products, markets, processes and other organisational aspects.

In competitive relationships, firms focus on maximising the value of investment in their markets. The success of the organisation does not only depend on the creation of new products and/or services but also and especially on the generation of results in proportion to the investment made. Hence, under pure competition, organisations are evaluated by their respective market share, which refers to the percentage of the market deemed determinant to the highest performance level. However, within a co-opetitive framework, the relationship does not evolve in quite the same manner (Abdallh and Wadhwa 2009). Abdallah and Wadhwa (2009) defend the idea that the gains from co-opetitive relationships are proportional not only in keeping with the amount of organisational investment and participant perceptions of the relationship but also proportional to that directly invested in competing beyond that obtained from the actual cooperation as this may result in learning able to stimulate internal know-how. This, in turn, is susceptible to producing greater gains not only during the co-opetition relationship itself but also subsequently should exclusively competition based relationships again prevail.

To the extent the relationship is able to develop, thus the extent of understanding and trust expands and facilitates dealing with any uncertainties arising in the alliance. Therefore, Doz and Hamel (1998) propose the best way of conceiving such alliances as being evolving relationships and punctuated by a series of commitments, stages and exchanges negotiated explicitly and accepted implicitly over the course of time. Within this framework, cooperation takes place when a partner shows trust in another and utilises opportunities arising to express trust and inclusively opting to engage in a cycle of virtuous learning. This encourages the belief that networked relationships occur and persist over time with organisations correspondingly seeking out spaces, ways, and approaches to establishing such relationships out of the belief that they will contribute to their future development, growth and sustainability.

Despite the benefits and rationale behind establishing cooperation agreements, firms frequently do not adopt this strategy due to the prevailing legal and business regulatory restrictions they operate under and that ensure firms do not attain the mass and financial valuation necessary to enter into new markets and become more

competitive (Stuart 2000). In certain other cases, cooperation may be problematic as this may potentially require new structures, routines and different patterns of movement between partners (Todeva and Knoke 2005). Various barriers to cooperation are identified: lack of trust in partners (Todeva and Knoke 2005; Speckbacher 2010; Steensma et al. 2000; Sirmon and Lane 2004; Pothukuchi et al. 2002; Sarkar et al. 2001; Gratton 2006); cultural differences (Elmuti and Kathawala 2001; Steensma et al. 2000); incompatibility and divergence of objectives (Todeva and Knoke 2005; Kilburn 1999; Johanson and Vahlne 1990); differences in structures and attitudes among partners (Bleek and Ernest 1993); creating and encouraging potential competitors (Todeva and Knoke 2005); and inappropriate choice of partner (Elmuti and Kathawala 2001).

From the Aldrich (1979) perspective, organisations also strive to retain their autonomy and, out of a deliberate option, prefer not to establish inter-organisational relationships to the extent such relationships tend to restrict their future scope of action and complicate strategic decision making. Achrol et al. (1990) report on a need for a firm to display an understanding of the cooperative dimension to inter-firm relationships and highlight the behaviour of members, group cohesion and the motivations present for participating and developing cooperation.

In this context of cooperative processes, firms need to clearly grasp that their internal process structures are to be shared with the respective other members of the alliance established and to the extent of establishing new links between chains of value. Hence, the composition of cooperative networks can contribute towards strengthening the relationship with suppliers, reducing the need for capital and opening up access to technology and interchanges with knowledge intensive institutions and firms.

3.2.1 Perspectives on Inter-firm Co-opetition

In an ever more competitive and turbulent environment, the growing interdependence of national economies and the search for greater competitiveness are factors necessarily moulding the development of sustainable and competitive strategies in any sector of activity. In some sectors, restructuring and consolidation represent means of building up dynamic and innovative firms and able to attain the critical economies of scale. Furthermore, the co-opetition model, that leads competitors to mutually compete and cooperate with each other but also with actors throughout the chain of value (Naluff and Brandemburger 1996), also represents one means of achieving sustainable competitive advantages.

In the literature on co-opetition, various authors propose and set out diverse models for sustaining the validity of cooperative actions between competitors as a means of competing, providing solutions, fostering social relationships, complementariness between firms and gains in levels of competitiveness (Perrow 1992). Co-opetitive behaviour represents a situation in which, irrespective of the prevailing levels of competition, firms seek to engage in mutual cooperation,

sharing the benefits in accordance with the respective division of resources, abilities and capacities. In this case, the shared objectives prove more important than maximising individual profits. The partners contribute towards the total value created by the interrelationship and are satisfied with a lower profit percentage while able to maintain the relationship (Bengtsson and Kock 2000). This does not mean the benefits prove equal to each partner irrespective of how managing the creative knowledge synergies deriving from alliances generates an overall total value. This refers to cooperative advantage that is generated when firms undertake behaviours that emphasise altruism, trust and reciprocity (Kanter 1994). Trust may produce results in various different ways: reducing both uncertainty and transaction costs that would otherwise be incurred with the construction of defensive mechanisms against the risks of opportunism among partners (Lado et al. 1997). Equality in the relationship may be explained by the structural requirements of a particular industry obliging firms to act in relation to their ongoing rivalry as well as the prevailing social conditions and infrastructures and relationships of dependency. Dependency among competitors, due to structural conditions can in turn explain just why competitors simultaneously cooperate and compete (co-opetition). The relationship between competition and cooperation – seeking to foster better knowledge and development, economic and market growth, incremental technological progress – may bring greater benefits than any competition or cooperation taking place separately (Lado et al. 1997). On the one hand, competition may stimulate innovation in firms, which helps advance knowledge, technical capacities and market growth assuming intellectual property is well protected (North 1990). On the other hand, cooperation between competing firms may stimulate socio-economic progress, strengthening knowledge, boosting both the volume and the quality of goods and services and expanding the market potential (Jorde and Teece 1989).

Competitive cooperation also supplies a means of approximating rivals in order to forecast just how they are likely to behave when the alliance comes to an end (Hamel et al. 1989). As regards this relational type, it is also possible to gain other general advantages from strategic alliances (Bengtsson and Kock 2000), in order to mutually complement and strengthen participants across diverse domains such as production, launching new products, entering new markets, reducing costs and risks, creating and transferring technologies and capacities, among others. These arguments demonstrate that co-opetition throws positive aspects into the spotlight and strengthens their effectiveness and the effects deriving from competition and cooperation. Firms displaying co-opetitive behaviours improve their scope for flexibility and gain an impressive range of strategic options (Lado et al. 1997). Attaining and maintaining business success in the current environment very often demands firms simultaneously adopt cooperative and competitive strategies (Lado et al. 1997; Hakansson and Ford 2002; Gadde et al. 2003; Luo 2007). The issue of co-opetition among major firms has been subject to study for some time now. In fact, the global scale of business success of some firms very often reflects their having undertaken cooperative strategies. Indeed, this falls in line with the position defended by Williamson (1979) regarding achieving more favourable and less risky

transaction costs as a result of cooperation. According to Luo (2007), within a context of global competition, multinational firms very often engage in simultaneously complex competitive and cooperative relationships with rival global businesses. More recently, this issue was also approached from the perspective of managing small and medium sized enterprises (SMEs). Of particular note, Porter (1998) suggests that firms in emerging industries face a dilemma over raising their competitiveness in terms of self-interest or cooperating with other actors so as to advance the overall level of development in their respective sector. Competing and cooperating may also help SMEs leverage their results to the extent they share knowledge, information, marketing intelligence, channels of distribution, R&D laboratories, among other factors.

Cooperation between SMEs may prove extremely beneficial as they access resources otherwise unavailable and thereby enhancing more dynamic and innovative firms and with greater mutual gains (Luo 2007). Co-opetition brings about implications of varying orders of importance and that require developing. Thus, co-opetition implies the coexistence of cooperation and competition between competitor firms and a different format for strategic or cooperative alliances between firms. In this case, the unit of analysis is the alliance itself rather than the actual firms. Within a framework of co-opetition, firms are bound over to cooperating in some areas while left free to compete in other areas. According to Luo (2007), various economic and strategic aspects provide support to the existence of co-opetition between firms.

Firstly, interdependence between firms is now more necessary than ever before. Two antagonic forces, the pressure to compete and the desire to cooperate are simultaneously at play, driving a situation in which competitors exhibit syncretised behavioural patterns. Co-opetition is strengthened by the coexistence of shared market interests and asymmetric resources at competing firms. Shared market interests contribute more to competition while the existence of asymmetric resources better fosters cooperation. Hence, cooperating with rival firms does not only represent a means of accessing their competences/abilities but is rather a means of actually obtaining those competences/abilities (Hamel et al. 1989). The capacity of a firm to develop and maintain cooperative relations may be seen as a key facet to the firm's competitive strategy and also the result of openly assumed decision making and as well as resulting from the actors, resources and activities engaged in the cooperation project (Lundenberg and Andresen 2011). To keep all parties involved in the relationship, they should all gain from the results of the interactions ongoing (William 2005).

3.3   Methodology

3.3.1   Sample

Considering the core objective of this research project seeks to identify the way in which firms involved in cooperation agreements actually cooperatively relate with their competitors – co-opetition – as from the point of undertaking such relationships with innovation based objectives, the study sample focused on firms located in the border regions of Portugal and Spain. In order to generate the necessary empirical evidence, we developed and implemented a questionnaire across a sample of Iberian firms agreeing to participate and meeting the core criteria in effect: with border region locations and actually involved in cooperation processes. The final sample ended up including 25 Portuguese firms and 36 Spanish firms.

3.3.2   Methods

The data thereby gathered was subject to processing through Software SPSS version 18.0. The variables are summarised by median and standard deviation. The bivariate analysis applied Pearson's correlation coefficient to the variables. In multivariate terms, linear regression served to analyse the influence of the variables for innovation capacity and the modes cooperation on financial performance (turnover). We adopted Ordinal Regression models (with Probit link) for ordinal turnover volumes (turnover equal to or less than €2 million, turnover greater than €2 million and less than or equal to €5 million, turnover greater than €5 million and less than or equal to €10 million, turnover greater than €10 million). Through recourse to the Mann–Whitney U test for two independent samples (Portuguese firms and Spanish firms), we find that in terms of the firm age of operation by interval (less than 15 years, 16–35 years, 36–70 years, over 70 years in business), for only a 5 % level of significance, the age of up to 15 years was of significant influence. The same test, for the same level of significance, applied to number of employees (less than 10 employees, 10–49 employees, 50–249 employees) revealed that only the 50–249 worker category returned any significant influence. The study variables were measured as follows (Table 3.1):

Table 3.1 Variable characteristics

	Type	Construction
Firm origin (country)	Binary	0 = when the firm is Spanish
	Binary	1 = when the firm is Portuguese
Firms in business for under 15 years	Binary	1 = when the firm is Portuguese and in business under 15 years
Firms in business for under 15 years	Binary	0 = when the firm is Spanish and in business under 15 years
Between 50 and 249 employees	Binary	1 = when the firm employs between 50 and 249 employees
Industrial firm	Binary	1 = when the firm is industrial
Modes of cooperation		
Cooperation types: with suppliers	Categorical	Intensity between 1 (weak) and 5 (very strong)
Cooperation types: with clients	Categorical	Intensity between 1 (weak) and 5 (very strong)
Cooperation types: co-opetition	Categorical	Intensity between 1 (weak) and 5 (very strong)
Modes of innovation		
Product innovations	Categorical	Importance between 1 (not important) and 5 (very important)
Process innovations	Categorical	Importance between 1 (not important) and 5 (very important)
Organisational innovations	Categorical	Importance between 1 (not important) and 5 (very important)
Financial performance		
Turnover	Categorical	Under €2 million, between €2 and €5 million, between €5 and €10 million, over €10 million

3.4 Results

3.4.1 Univariate Analysis

Table 3.2 presents the descriptive statistics (medians and standard deviations) for the study variables. The descriptive statistics reveal a series of differences between the Portuguese and the Spanish firms as regards the levels of attributed significance. Portuguese firms place greater emphasis on co-opetition (mean = 2.60) than their Spanish peers (mean = 2.35) and experiencing the contrary in relation to cooperating with clients that proves of greater priority to Spanish firms (mean = 3.37).

The sample reports that 50 % of firms are engaged in co-opetition practices as a means of cooperation. These firms have been operational for up to 15 years and are both medium in scale (between 50 and 249 employees) and all industrial firms.

Table 3.2 Descriptive statistics

	All companies		Portuguese companies		Spanish companies	
	Mean	SD	Mean	SD	Mean	SD
Firms in business for less than 15 years	0.33	0.47	0.35	0.49	0.31	0.47
Between 50 and 249 employees	0.08	0.28	0.04	0.2	0.11	0.32
Industrial firms	0.61	0.49	0.38	0.5	0.77	0.43
Cooperation types: with suppliers	3.09	1.46	3.04	1.51	3.14	1.43
Cooperation types: with clients	3.22	1.27	3.04	1.27	3.37	1.27
Cooperation types: co-opetition	2.47	1.36	2.6	1.58	2.35	1.13
Product innovations	3.14	1.62	3.15	1.57	3.13	1.69
Process innovations	3.00	1.48	2.50	1.78	3.3	1.22
Organisational innovations	2.35	1.47	2.4	1.65	2.33	1.43
Number of observations	61		25		36	

3.4.2 Multivariate Analysis

With the objective of verifying to what extent the goals of cooperation are influenced by the firm profile and the modes of cooperation, we adopted a linear regression model (Table 3.3). In order to render the regression model more flexible, we always took the firm country of origin as our control or dummy variable. In the model, we correspondingly always assume this comparison between Portuguese firms and Spanish firms.

In the estimations of all the variables predicting cooperation, and always comparing Portuguese firms against Spanish firms, with the set target of improving business processes, distribution network, outsourcing and R&D, no significant influence of the variables under analysis was reported for either country under analysis. As regards cooperation for export purposes, Portuguese firms ($B = 2.41$; $p < 0.10$), with between 50 and 249 employees ($B = 5.21$; $p < 0.01$) attribute greater importance to this cooperation objective. According to regression incorporating only cooperation types, we found that cooperation with competitors (thus, co-opetition) was significantly associated ($B = -0.88$; $p < 0.10$) with distribution networks in the case of Portuguese firms. Therefore, the greater the importance attributed to co-opetition, the lesser the level of distribution network implementation. In the estimate for distribution agreements that are the only cooperation types, we find a negative association with the importance attributed to co-opetition ($B = -0.060$; $p < 0.05$) and where the greater the importance attributed to cooperation, the lesser attributed to co-opetition. On the contrary, in the case of Spanish firms, testing only cooperation types, we find that cooperation with competitors is significantly associated ($B = 0.88$; $p < 0.10$) with distribution networks. The greater the importance attributed to cooperation with competitors, the greater the level of incidence of distribution agreements. In the estimation of distribution networks as the only cooperation type, we find a positive association with the importance

Table 3.3 Linear regression: variables that influence cooperation objectives

		Coefficients				Coefficients			
		B	SE	p	R2	B	SE	p	R2
Improvements in business processes	(Constant)	−0.48	1.24	0.704	0.407	0.60	0.78	0.455	0.180
	Country (Portugal)	1.15	0.99	0.265					
	Firms in business for less than 15 years	−1.08	0.77	0.183					
	Between 50 and 249 employees	−0.92	1.08	0.406					
	Industrial firms	0.61	0.60	0.327					
	Cooperation types: with suppliers	−0.07	0.25	0.772		−0.05	0.26	0.850	
	Cooperation types: with clients	0.33	0.39	0.411		0.41	0.40	0.311	
	Cooperation types: with competitors	0.03	0.27	0.900		0.15	0.27	0.592	
Exports	(Constant)	−1.27	1.62	0.442	0.637	0.93	1.18	0.439	0.321
	Country (Portugal)	2.41	1.29	0.080*					
	Firms in business for less than 15 years	0.25	1.01	0.809					
	Between 50 and 249 employees	5.21	1.40	0.002***					
	Industrial firms	0.63	0.78	0.432					
	Cooperation types: with suppliers	0.17	0.33	0.602		0.33	0.39	0.411	
	Cooperation types: with clients	0.00	0.50	0.998		0.06	0.60	0.919	
	Cooperation types: with competitors	0.59	0.36	0.116		0.80	0.41	0.065	
Distribution networks	(Constant)	1.52	1.41	0.299	0.571	0.41	0.82	0.624	0.497
	Country (Portugal)	−1.14	1.13	0.328					
	Firms in business for less than 15 years	−0.27	0.88	0.759					
	Between 50 and 249 employees	−1.97	1.23	0.127					
	Industrial firms	−0.32	0.68	0.642					
	Cooperation types: with suppliers	0.48	0.29	0.110		0.42	0.27	0.143	
	Cooperation types: with clients	0.64	0.44	0.168		0.64	0.42	0.141	
	Cooperation types: with competitors	−0.52	0.31	0.116		−0.60	0.28	0.047**	

Outsourcing	B	SE			B	SE		
(Constant)	2.09	2.60	0.433	0.109	2.21	1.44	0.141	0.041
Country (Portugal)	0.64	2.08	0.762					
Firms in business for less than 15 years	−1.18	1.62	0.479					
Between 50 and 249 employees	1.41	2.26	0.543					
Industrial firms	−0.56	1.26	0.663					
Cooperation types: with suppliers	0.04	0.53	0.938		0.08	0.48	0.868	
Cooperation types: with clients	−0.18	0.81	0.829		−0.10	0.73	0.891	
Cooperation types: with competitors	0.02	0.57	0.975		0.17	0.50	0.741	
R&D								
(Constant)	0.36	2.21	0.871	0.182	0.58	1.21	0.636	0.142
Country (Portugal)	0.47	1.77	0.793					
Firms in business for less than 15 years	−0.48	1.38	0.730					
Between 50 and 249 employees	−0.74	1.92	0.704					
Industrial firms	−0.58	1.07	0.595					
Cooperation types: with suppliers	−0.58	0.45	0.210		−0.59	0.40	0.162	
Cooperation types: with clients	0.82	0.69	0.252		0.76	0.62	0.230	
Cooperation types: with competitors	−0.08	0.49	0.865		0.00	0.42	0.991	

B Variable coefficients, *SE* Standard error

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 3.4 Linear regression: variables influencing modes of innovation

		Coefficients					Coefficients			
		B	SE	p	R2		B	SE	p	R2
Product innovations	(Constant)	−1.46	1.47	0.339	0.608		0.75	1.11	0.512	0.372
	Country (Portugal)	1.73	0.92	0.082*						
	Firms in business for less than 15 years	0.08	1.05	0.942						
	Between 50 and 249 employees	2.91	1.15	0.025						
	Industrial firms	1.04	0.84	0.239						
	Cooperation types: with suppliers	−0.56	0.42	0.201			0.12	0.33	0.732	
	Cooperation types: with clients	0.53	0.39	0.202			0.32	0.41	0.441	
	Cooperation types: with competitors	0.30	0.31	0.352			0.13	0.28	0.657	
Process innovations	(Constant)	1.84	1.94	0.360	0.277		1.28	1.28	0.330	0.121
	Country (Portugal)	−0.59	1.21	0.633						
	Firmsin business for less than 15 years	0.46	1.39	0.747						
	Between 50 and 249 employees	1.58	1.52	0.320						
	Industrial firms	−0.19	1.11	0.869						
	Cooperation types: with suppliers	−0.12	0.55	0.831			−0.23	0.38	0.551	
	Cooperation types: with clients	0.50	0.52	0.356			0.57	0.47	0.245	
	Cooperation types: with competitors	0.32	0.41	0.451			0.21	0.32	0.530	
Organisational innovations	(Constant)	−2.04	1.15	0.101	0.705		−0.82	0.90	0.375	0.495
	Country (Portugal)	1.59	0.72	0.046**						
	Firmss in business for less than 15 years	0.66	0.83	0.441						
	Between 50 and 249 employees	2.20	0.91	0.030**						
	Industrial firms	−0.83	0.66	0.229						
	Cooperation types: with suppliers	−0.17	0.33	0.622			0.04	0.27	0.876	
	Cooperation types: with clients	0.58	0.31	0.084*			0.61	0.33	0.087*	
	Cooperation types: with competitors	0.45	0.24	0.085*			0.10	0.23	0.667	

B Variable coefficients, *SE* Standard error

*$p < 0.10$, **$p < 0.05$

granted to cooperating with competitors (B = −0.60; p < 0.05), whereby the greater the importance awarded to cooperation, the greater the level of co-opetition.

Regarding means of innovation (Table 3.4), we find there is no significant association in the estimations for the respective process innovation variables for either country.

As regards the importance attributed to product innovation, Portuguese firms (B = 1.73, p < 0.10) attribute higher levels of importance when compared to their Spanish peers. The level of emphasis placed on organisational innovation is significantly influenced by the Portuguese origins of firms (B = 1.59; p < 0.05) and employing between 50 and 249 employees (B = 2.20; p < 0.05), where these variables report significantly greater levels of importance. As regards modes of cooperation, for Portuguese firms there is a significant association attached to cooperating with clients (B = 0.45, p < 0.10) and competitors (B = 0.39, p < 0.10). For these variables, the greater the importance attributed to modes of cooperation, the greater the relevance of the modes of innovation and more specifically means of product innovation. In the case of Spanish firms, the effects described run inversely to the Portuguese case with cooperation with clients and competitors decreasing in accordance with the importance attributed to product innovation.

We also found that at Portuguese firms only cooperation with clients (B = 0.61, p < 0.10) bears a significant influence on organisational innovations. Meanwhile, in the Spanish case, there is actually a negative effect (B = −0.61, p < 0.10), to the extent that the greater the importance of cooperation with clients, the lesser the importance of organisational innovation. The results returned by the Portuguese sample run counter to the conclusions defended by Nieto Santamaria, (2007) and Ritala & Hurmelinna-Laukkanen, (2009).

When analysing the effects of the importance attributed to cooperation types and innovation on financial performance (Table 3.5), we report that both the modes of innovation and of cooperation held no influence over business turnover in both countries.

Table 3.5 Ordinal regression: influence of cooperation types and innovation performance

Dependent		Coefficients			
		B	SE	p	R2
Turnover	Product innovations	0.22	0.13	0.104	0.147
	Process innovations	−0.01	0.15	0.946	
	Organisational innovations	0.08	0.15	0.598	
	Cooperation types: with suppliers	0.17	0.25	0.498	0.087
	Cooperation types: with clients	0.23	0.35	0.510	
	Cooperation types: with competitors	−0.48	0.32	0.137	

3.5 Conclusion

The primary goal of this article was to better grasp the way in which firms relate to their competitors within a co-opetitive framework in terms of how they actually reach innovation based cooperation agreements and ascertain their respective influence on performance. The literature reports that firms take strategic decisions to get involved in networks and cooperation agreements that enable them to strengthen their innovation capacities and thereby their business performance. One of the main motives for firms engaging in cooperation with their competitors relates to the creation of value or benefits, that is, to improve their firm performance through actions of co-opetition (Rusko 2011). Given the results obtained, we conclude that when the purpose of cooperation is to increase exports, the Portuguese firms attributing more importance to this objective are medium sized firms (50–249 employees). When we seek to analyse Portuguese firm co-opetition, we find that whenever they cooperate with competitors, they do not attach particular importance to distribution networks as an objective for such cooperation. Meanwhile, in the case of Spanish firms, the relationship is inverted. When analysing the influence of cooperation types on modes of innovation, we find Portuguese firms return a positive relationship between medium-sized firms fostering co-opetition and the introduction of product innovations.

When analysing the influence of cooperation with clients, our findings point to such cooperation in the Portuguese case influencing both produce and organisational innovations. Meanwhile, in the Spanish case, such effects are negative and hence the modes of cooperation negatively affect the types of innovation where the greater the importance awarded to modes of cooperation, the lesser the importance of such innovation types. Finally, in terms of financial performance, this is not impacted either by the modes of cooperation or by the means of innovation in either country.

Global competition increasingly shapes the way firms operate, compete and innovate and leading to firms opening up their innovation processes through innovation into cooperation networks with external partners (suppliers, clients, universities, etcetera) to cooperate and thereby expand their innovative capacities. From the business strategy point of view, this study demonstrates, at least in the case of Portuguese firms, that a greater level of co-opetition leads to greater levels of innovation taking place at firms in contrast to the traditional trends for such firms to display low levels of innovation. Additionally, in an era of market stress and turbulence, the agility of firms in undertaking fundamental actions structured around cooperation based initiatives may prove fundamental to competitiveness and the future survival of the firm.

This study thereby contributed towards extending our understanding of cooperation versus competition processes and the way in which these influence the innovation ongoing at firms and their respective performance levels.

The main limitations of our study derive from the limited scale of our sample and the fact that it did not take into consideration different sectors of activity. We

believe it important to continue to deepen our understanding in this field and carry out a representative evaluation of the way in which the cooperation and competition process contribute towards business innovation and performance, especially in more internationally competitive contexts and taking the sector of activity variable into account.

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Chapter 4
Entrepreneurship, Global Competitiveness and Legitimacy

Alicia Blanco-González, Francisco Díez-Martín, and Alberto Prado-Román

Abstract The purpose of the present research is to further study the relation between Entrepreneurship, Global Competitiveness and Legitimacy of a country. The initial hypothesis is that the higher the rate of entrepreneurship is, the greater the indicators of competitiveness and political legitimacy will be, increasing thus the possibility of economic growth for the country. This relation in Spain is measured using the Global Entrepreneurship Monitor (GEM), the European Social Survey (ESS) of the Union European (EU) and the Global Competitiveness Index (GCI) of the World Economic Forum (WEF) for the period between 2006 and 2012. The results show a decline in the entrepreneurship rate in Spain, which translates into a loss of competitiveness and a considerable decline of political legitimacy, especially regarding acts of justification (confidence in the political system and disappointment with the economy and the institutions). Results also indicate that public-private efforts are necessary to increase the entrepreneurship rate and improve legitimacy that enables Spain to attract investments and improve their position in the rankings that evaluate its competitiveness.

4.1 Introduction

Entrepreneurship is an extremely important activity for the competitiveness and growth of a country, which contributes to the creation of new jobs (Birch 1979, 1987; Van Stel et al. 2005). Nevertheless, the relation between entrepreneurship and the competitive development of a country is a relation difficult to measure (Spencer and Gómez 2006) and the empirical studies regarding the impact of entrepreneurship over the competitive development of states are limited (Van Stel et al. 2005). Hence, the approach of this research is not only to measure this relation but to incorporate a new variable: political legitimacy.

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Fig. 4.1 Entrepreneurship, competitiveness and legitimacy (Source: Authors' elaboration)
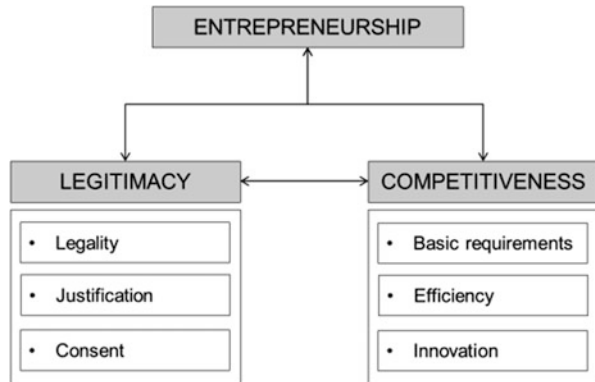
The level of development of a country is a key factor for those countries who want to reach their competitive goal (Amoros et al. 2012). The Global Entrepreneurship Monitor (GEM), the most relevant annual report on entrepreneurship, will be employed to conduct this study. The competitiveness of a country is a concept that has been analyzed from the beginning of Porter's arguments (1990) on the relevance of nations' competitive advantage. Some of the most relevant publications on competitiveness are the Global Competitiveness Report of the World Economic Forum (WEF) and the IMD World Competitiveness Yearbook. Following the World Economic Forum, Porter (2002) define competitiveness based on the degree of economic development of a country, which is divided into three specific stages: the factor-driven stage, the efficiency-driven stage and the innovation-driven stage. Furthermore, Porter (2002) develop two transitions between these stages (Fig. 4.1).

Finally, legitimacy is a relevant factor for competitiveness and the development rate of a country, while organizations must conform to social expectations and economic demands. Nowadays, to survive and to access resources entails finding the competitive advantage (Porter 1985). Therefore, the pursuit of the competitive advantage has become one of the reasons that lead to the search for organizations' legitimacy. Authors as Starr and MacMillan (1990) indicate that organizations must create an image of viability and legitimacy before being able to receive any support. Thus, a legitimate organization can obtain a greater support of stakeholders (Choi and Shepherd 2005), and better access to investment (Cohen and Dean 2005; Deeds et al. 2004; Deephouse and Suchman 2008; Diez-Martin et al. 2010a, 2013; Higgins and Gulati 2006; Pollock and Rindova 2003).

4.2 Theoretical Background

Firstly, entrepreneurship is one of the variables that empirical literature has suggested as a key element for a country's economic growth (Bleaney and Nishiyama 2002). There are diverse ways in which entrepreneurship may influence the economic growth of a country, for example, introducing important innovations through the opening of new markets or new production processes (Acs and Amorós 2008), or throughout the increase of competitiveness between companies (Geroski 1989; Nickel 1996; Nickel et al. 1997).

Secondly, and in accordance with the WEF, competitiveness is the group of institutions, policies and factors that determine the level of productivity of a country. The productivity level is the prosperity level that takes place in an economy. Productivity determines the ratio of return obtained from investments in the economy, leading to growth in the country. In other words, a more competitive economy will grow faster in time.

The measurement of a country's level of competitiveness concentrates fundamental aspects for the country's growth and productivity, and the attraction of domestic and foreign investment. The factors that the WEF takes into consideration for the measurement of a country's competitiveness are: institutions, infrastructure, macroeconomic stability, health and primary education, higher education and training, goods market efficiency, labor sector efficiency, financial market sophistication, technological readiness, market size, business sophistication and innovation.

Thirdly, legitimacy is a condition of cultural alignment, normative support and consonance with relevant rules and laws (Scott 1995). Its significance lies in the fact that the acceptance and desirability of an organization's activities by its environment and by social groups will enable access to the resources needed to survive and grow (Zimmerman and Zeitz 2002). Numerous organizations have failed not because their products or policies were bad or because they did not have sufficient resources, funding, or competitiveness, but due to their lack or deterioration of legitimacy (Ahlstrom and Bruton 2001; Chen et al. 2006).

The concept of political legitimacy, key in political science, refers to the degree in which citizens support the holding and exercising of political power. States that lack legitimacy allocate more resources to maintaining their rule and less to effective governance, which reduces economic stability (Gilley 2006). Numerous institutions, procedures or actors can be the objective of a political legitimacy study; ours will be the State, as institutional and ideological cornerstone of the political community. At this point, we must identify three sub-types of political legitimacy (Beetham 1991):

– Views of legality: The State holds and exercises political power in agreement with the citizens' views over laws, rules and custom. The importance of this dimension lies in the fact that rules are general and predictable. Rules create predictability in social life, which is itself a moral good, even if they often reinforce injustices in other respects. For example, how citizens perceive corruption and compliance with laws, their view of the police or citizen participation in demonstrations.

– Views of justification: Based on the principles shared by a society, ideas and values. Citizens respond to moral reasons given by the State to act in a certain way. Legitimacy is drawn from a shared morality that exists in citizens' everyday discourses. In other words, there is a common series of beliefs that dominate power relationships (Beetham 1991). The notion of moral consistency between the State and society is the basis of comparative and sociologist politics literature (for example, Nevitte and Kanji 2002). Confidence in political leaders or the view on the effectiveness of political institutions are examples of this.

– Acts of consent: The two previous dimensions are seen from a normative point of view; nevertheless they are insufficient to explain the legitimacy of the State. The omnipresence of political power and their regularization in everyday life means that at a given moment, citizens consciously may consider the legality or the justification of only a very small fraction of the whole system. This legitimacy gap gives rise to the need for "acts of consent." "Acts of consent" refer to the positive actions that express a citizen's recognition to the State's right to hold political authority and the acceptance of political obligation to comply with the resulting decisions, for example, voter turnout, collaboration with associations or payment of voluntary taxes.

The organizations who survive longer are those that better conform to the pressures of the environment, acting in accordance with socially established laws, norms and values. Those organizations who do not conform to the environment do not survive (Zaheer 1995). When an organization no longer has legitimacy it finds itself being socially rejected, which prevents it from having access to resources, and therefore limits or voids its competitiveness or productivity (Diez-Martin et al. 2010b, 2013; Vanhonacker 2000).

Therefore, the level of competitiveness is considered to be key to economic growth and to the survival of a state since it depends on the level of support received from its stakeholders (that is, its legitimacy) (Arnold et al. 1996). For example, it has been proven that legitimacy increases survival rates in non-profit organizations (Baum and Oliver 1991–1992; Singh et al. 1986) and reduces the rate of disappearance of hospitals in the United States (Ruef and Scott 1998).

Organizations (States) achieve greater legitimacy when complying with rules (point of view of legality), principles (point of view of justification) and beliefs (acts of consent) (Scott 1995). Legitimacy that can be gained, maintained or lost; and that can therefore be managed by institutions (Suchman 1995; Deeds et al. 1997). A large number of researches have examined how certain actions can be useful for some subjects to gain legitimacy while they can also cause other subjects to lose it (Phillips et al. 2004). Findings such as these reinforce the contributions of Suchman (1995) who believes that the best way of gaining legitimacy is, often, just conform and comply with what the environment wants. However, we know that the legitimacy can be managed, but which are the benefits of high levels of legitimacy?, do high levels of legitimacy influence the level of competitiveness reached by the institution or do they improve a country's entrepreneurship levels?

The strategic view of legitimacy is seen as something that can be manipulated to achieve the objectives of the institution or to access resources, in this case to achieve a higher level of competitiveness (Suchman 1995). Further, legitimacy allows the creation of a base for making decisions different from rational means. Individuals are influenced by how much they believe that the decisions taken by other legitimate people/institutions are right or appropriate and they should be followed (Zelditch 2001). Legitimacy would be able to create a sense of obligation in individuals that allows more legitimate organizations to gain the voluntary consent of external agents (Tyler 2005). That is, the greater the legitimacy the higher the scores on the indicators that measure competitiveness (e.g., sophistication of market and entrepreneurship rates.)

4.3 Methodology

4.3.1 Sample

The GEM report presents an annually published assessment of business activities, and individuals' aspirations and attitudes through a wide range of countries. This GEM initiative began in 1999 as an association between the London Business School and Babson College. The variable Total Entrepreneurial Activity (TEA) for the period 2006–2012 in Spain employed in this research will be extracted from this report.

Every 2 years, The European Union develops the European Social Survey (ESS) with the objective of measuring the change in attitudes and behavior patterns of European citizens over time and between countries, improving the quality of quantitative measurement, and establishing solid social indicators that enable the assessment of welfare on European countries.

The World Economic Forum (WEF) develops a competitiveness index showing how countries are placed in a competitiveness ranking through time and classifies them hierarchically in terms of a series of variables representing the micro and macro influences of each country. That is, it presents the competitive situation of each country in terms of individual variables and a combination of variables. The WEF calculates its index by weighting the average of the country through three indicators: basic requirements (institutions, infrastructure, macroeconomic environment and health and primary education), efficiency enhancers (higher education and training, goods markets efficiency, labor market efficiency, financial market sophistication, technology readiness and market size) sophistication and innovation factors (business sophistication and innovation).

4.3.2   Data and Variables

Using data from the GEM, the ESS and the WEF, this research aims to determine
the interrelation between entrepreneurship, competitiveness and political legiti-
macy in a country and explore which factors have a relative priority over the others.
Our study includes one item from the GEM, 18 items from ESS and 12 sub-index
from the GCR for Spain between the years 2006 and 2012.

Entrepreneurship: To measure entrepreneurship we will use the Total Entrepre-
neurial Activity (TEA) contained in the GEM, which measures the relative amount
of nascent entrepreneurs and business owners of young firms for a range of
countries.

Competitiveness: The data corresponding to the years 2006, 2008, 2010 and
2012 of the GCR were obtained so as to evaluate competitiveness. Thus, we analyze
the data concerning the Global Competitiveness Index, as well as the categories by
pillars and dimensions for a scale of 1–7 (Table 4.1).

Political legitimacy: In order to assess political legitimacy we used the indica-
tors proposed by Gilley (2006) obtained through the European Social Survey. For
that purpose, we obtained the public data corresponding to the years 2002, 2004,
2006, 2008, 2010 and 2012 of the ESS. Subsequently, four measurements from the
GCR regarding Spaniards perception of legality, justification and acts of consent
were selected when its availability from the year 2005 was confirmed. Finally, we
selected 18 items to measure political legitimacy (Table 4.2).

Table 4.1 Indicators of competitiveness

Pillars	Dimensions
Basic requirements	1. Institutions
	2. Infrastructure
	3. Macroeconomic environment
	4. Health and primary education
Efficiency enhancers	5. Higher education and training
	6. Goods market efficiency
	7. Labor market efficiency
	8. Financial market development
	9. Technological readiness
	10. Market size
Innovation and sophistication	11. Business sophistication
	12. Innovation

Source: World Economic Forum (2014)

Table 4.2 Indicators of Legitimacy

Legitimacy sub-type	Indicator	Scale
Legality	Confidence in the judicial system (PB8)	0–10
	Confidence in the police (PB9)	
Justification	Confidence in the Spanish parliament (PB7)	0–10
	Confidence in politicians (PB10)	
	Satisfaction with the economic situation (PB30)	
	Satisfaction with the functioning of democracy (PB32)	
	Satisfaction with education (PB33)	
	Satisfaction with the public health care system (PB34)	
Consent	Voter turnout (PB13)	1–2
	Political participation – demonstrations, boycotts, etc. (PB15–PB24):	
	Boycott to products for political, social or environmental reasons	
	Political contact, government	
	Signing of petitions	
	Participation in demonstrations	
	Collaboration with other organizations	
	Collaboration with political parties	
	Sample of emblems in campaigns	
	Political affiliation (PB26)	

Source: European Social Survey (2014)

4.4 Results

To analyze the relation between entrepreneurship, global competitiveness and political legitimacy we will proceed to the exhibition of the data obtained from the descriptive statistics (Table 4.3, 4.4, and 4.5) and the construction of global indicators of the variables. Taking into account that measuring scales are different depending on the specific dimension or variable, results were then turned into logarithms (scale 0–1) that enable benchmarking (Hair et al. 2009).

In Table 4.3 a remarkable drop in the TEA can be noticed for the 2008–2010 period, showing a slight increase in the rate on 2012.

Table 4.4 shows how the Spanish situation regarding the country's competitiveness index has not followed an upward progression. In Table 2.5, a loss of political legitimacy in all dimensions studied is verified. For the period 2006–2012, legality decreases 0.7228 points, justification 0.7228 and consent 0.0629. 2010–2012 was the period where Spain experiences a greater loss of legitimacy, years that coincide with the economic crisis. While the economic crisis (closely related to a country's competitiveness) can influence the political legitimacy it is relevant to mention the Spaniards loss of confidence in laws or their satisfaction with national economy (Table 4.5).

Table 4.3 TEA descriptive statistics

TEA SPAIN	2006	2008	2010	2012
Total early-stage entrepreneurial activity (TEA)	7.3	7.0	4.3	5.7

Table 4.4 Descriptive statistics of Spain's competitiveness index

Pillars of competitiveness	2006	2008	2010	2012
1. Institutions	4.3813	4.5901	4.2521	4.2460
2. Infrastructure	5.2920	5.2971	5.6732	5.9243
3. Macroeconomic environment	5.5976	5.5286	4.6027	4.1700
4. Health and primary education	6.3939	5.9613	6.0073	6.0888
5. Higher education and training	4.7959	4.7500	4.8510	5.0221
6. Goods market efficiency	4.6650	4.6332	4.2040	4.3685
7. Labor market efficiency	4.0135	4.1112	3.8821	3.9844
8. Financial market development	4.8466	4.9296	4.2821	3.8952
9. Technological readiness	4.2897	4.5865	4.6438	5.2886
10. Market size	5.5185	5.4728	5.4684	5.4530
11. Business sophistication	4.8297	4.8890	4.4615	4.5120
12. Innovation	3.6306	3.6062	3.4653	3.7705
Subindex A: Basic requirements	5.4162	5.3443	5.1338	5.1073
Subindex B: Efficiency enhancers	4.6882	4.7472	4.5553	4.6686
Subindex C: Innovation and sophistication	4.2301	4.2476	3.9634	4.1413
Global competitiveness index	**4.6964**	**4.7168**	**4.4934**	**4.5982**

Table 4.5 Descriptive statistics of dimensions of legitimacy

Dimension	*Item*	2006	2008	2010	2012
Legality	Confidence in laws	4.9984	4.3160	4.3831	3.6975
	Confidence in police	6.0242	6.0579	6.2279	5.8795
	Total (0–10)	**5.5113**	**5.1869**	**5.3055**	**4.7885**
Justification	Confidence in parliament	4.9910	4.3160	4.3160	3.6975
	Confidence in political parties	3.4647	3.2637	2.7031	1.8796
	Confidence in politicians	3.4937	3.3173	2.7249	1.9101
	Satisfaction with national economy	5.3224	3.6272	2.7226	2.1676
	Satisfaction with government	4.8002	4.0226	2.9590	2.5180
	Satisfaction with democracy	5.9156	5.8130	5.0893	3.9809
	Situation of education	5.1965	5.2450	5.2262	4.5407
	Total (0–10)	**4.9010**	**4.5409**	**4.0201**	**3.2099**
Consent	Products boycott	1.8968	1.9204	1.8852	1.8275
	Political contact, government	1.8797	1.8988	1.8650	1.8684
	Petition signing	1.7719	1.8236	1.7377	1.6676
	Participation in demonstrations	1.8184	1.8415	1.8178	1.7409
	Voting in past elections	1.4472	1.3867	1.4311	1.3371
	Collaboration with other organizations	1.8568	1.8979	1.8241	1.7801
	Collaboration with political parties	1.9488	1.9693	1.9299	1.9226
	Total (1–2)	**1.8176**	**1.8363**	**1.7987**	**1.7547**

Table 4.6 Global results of entrepreneurship, competitiveness and legitimacy

Year	2006	2008	2010	2012	Variation 2012-06
TEA	0.8633	0.8451	0.6335	0.7559	−0.1074
Global competitiveness index	0.6718	0.6736	0.6526	0.6626	−0.0092
Legality	0.7413	0.7149	0.7247	0.6802	−0.0611
Justification	0.6903	0.6571	0.6042	0.5065	−0.1838
Consent	0.2595	0.2639	0.2550	0.2442	−0.0153
Legitimacy	0.5637	0.5453	0.5280	0.4770	−0.0867

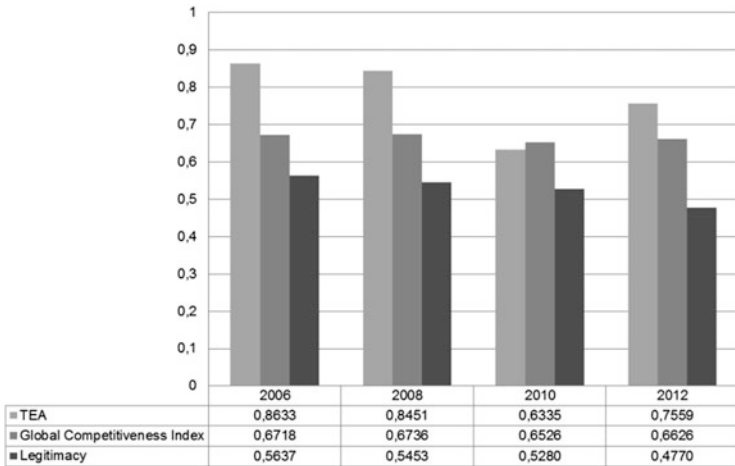|	2006	2008	2010	2012
TEA	0,8633	0,8451	0,6335	0,7559
Global Competitiveness Index	0,6718	0,6736	0,6526	0,6626
Legitimacy	0,5637	0,5453	0,5280	0,4770

Fig. 4.2 Entrepreneurship, competitiveness and legitimacy evolution

The results of the conversion to logarithms and the graphic representation of this evolution are presented in the following table and graphic (Table 4.6).

Although political legitimacy has decreased (−0.0867) and the TEA has presented a significant decline, the competitiveness index has remained more stable (−0.0092). This demonstrates that the outside perception of Spain is not the same as the one Spaniards have of their country and that the initiatives carried out by the Government and the satisfaction with education or health care are not consistent with the results achieved by Spain in international indices, such as the WEF. Likewise, the loss of legitimacy corresponds with the decline of new business (Fig. 4.2).

4.5 Conclusions

The objective of this research is to better understand how the relation between entrepreneurship, competitiveness and political legitimacy becomes a source of competitive advantage for countries. Entrepreneurship is one of the variables that empirical literature has suggested as a key element for a country's economic growth and competitiveness (Bleaney and Nishiyama 2002). Entrepreneurship and competitiveness are affected by the degree of social acceptance of the institutions running a State (Gilley 2006). States that lack legitimacy devote more resources to maintaining their rule and less to effective governance, which reduces social support and makes them vulnerable to being overthrown, which leads to little economic stability and loss of new businesses creation (Gilley 2006). For that purpose, the relation between the Total early-stage Entrepreneurial Activity (TEA), the index provided by the World Economic Forum each year and the dimensions of the political legitimacy calculated through data from the European Social Survey have being analyzed.

Through the study of entrepreneurship, competitiveness and legitimacy in Spain during the 2006–2012 period, the results suggest a decline in the rate of entrepreneurship and a loss of political legitimacy of Spain, which would hamper the achievement of the country's competitiveness advantage, and it is an evidence of Spaniards loss of confidence on their institutions, their legal system or voter turnout. Facts that in the immediate future would influence Spain's position in international rankings, such as the GRI developed by the WEF, and would hinder the start-up of new business.

The results of this study show a decrease of 0.1074 points (scale 0–1) in the entrepreneurship rate for the 2006–2012 period. This is the most notorious fall of all analyzed variables. In addition, and in consistency with these results the political legitimacy fell 0.0867 points. Even though this decrease of legitimacy has no influence on the political and economic stability of a democratic country like Spain, it can indeed be one of the causes of Spain's loss of attractiveness for investments, lower encouragement of entrepreneurs, or Spain positioning at international level (Gilley 2006). Analyzing results by dimensions or by the points of view regarding legitimacy, it can be demonstrated that the most significant decrease for legitimacy in Spain comes from the point of view of justification (-0.1838). The European Social Survey identifies values below the approved on all the indicators and a considerable loss of confidence in political parties (-1.4852 points out of 10), politicians (-1.5837) and the Parliament (-1.5637), and a disappointment with national economy (-1.5837), (-2.2822) government and democracy (-1.9346).

Analyzing legitimacy from the point of view of legality a low confidence in laws (3.6975 on 2012) and a decrease of 1.3009 points for the whole period is noted; moreover, confidence in the police obtained a passing score (5.8795). Finally, analyzing acts of consent it is observed that Spaniards' support and participation are decreasing.

Results which, in the beginning, are in the line with the results achieved in international competitiveness indices, but do not have direct relation with its evolution over time. In order to be able to prove this coherent relation the incorporation of a greater number of countries to this preliminary study becomes necessary to enable a more detailed comparison (a greater number of years at this moment would not be possible).

This research suggests that the Spanish government should concentrate its efforts on promoting entrepreneurship and gaining political legitimacy those results in an improvement on business climate and entrepreneurial environment to attract investments and improve the country's competitiveness. The government should focus on improving Spaniards level of satisfaction with law enforcement, political institutions and the educational and health system, and encourage voter turnout. Thus, the increase in legitimacy will lead to a raise in general confidence in Spain, greater economic stability and major access to resources, which will attract investors, improve the mood of entrepreneurs and have an impact on the escalation of Spain in international indices such as the Global Competitiveness Index or the Doing Business Index.

Finally, as every research work, this one is not without limitations. It is necessary to increase the number of countries of the sample, for example including European Union member states, in order to validate the proposed relation; to apply statistical methods enabling the confirmation of results; to introduce other variables not yet incorporated into the measurement or that might have an impact on the same; or to prove the effect of governmental and business initiatives to encourage entrepreneurship and Spanish competitiveness.

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Chapter 5
Providing Empirical Evidence from Forex Autotrading to Contradict the Efficient Market Hypothesis

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Abstract In this paper, we compare results from an automated operational strategy (or autotrading robot) with results from other financial products. Our aim is to analyze the performance of this robot. To this end, we optimized and evaluated an autotrading robot based on differences in signals of moving average convergence divergence (MACD). We applied this technique to six major currency pairs (AUD/USD, EUR/USD, GBP/USD, USD/CAD, USD/CHF, and USD/JPY), for a time scale of 1 h. We performed the analysis for an optimization period (2001–2008) and testing period (2008 to late August 2011), obtaining satisfactory results for all currency pairs. In addition, to evaluate the autotrading robot's performance, results for all currency pairs were compared with those of other homogeneous financial products, namely exchange-traded funds (ETFs). Returns from the autotrading robot for four currency pairs were considerably better than those generated by ETFs. Results from the autotrading robot were always positive for all currency pairs. In contrast, ETFs yielded negative returns in some cases. Findings also provide empirical evidence contradicting the efficient market hypothesis. This article therefore marks a contribution to research into entrepreneurship in financial markets.

5.1 Introduction

There are many reasons to research strategies and systems used to predict price movements in financial markets. Lawrence (1997) summarized two:

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- Profiting from any system or strategy that consistently identifies winning and losing trades in a dynamic market and that can economically benefit its owner. Researchers, professionals, and investors are constantly looking for systems of this type in pursuit of profit.
- Refutation of the efficient market hypothesis. According to the efficient market hypothesis, opportunities for making profit in financial markets quickly disappear once discovered. This means that no system can be used to overcome these markets because these markets are public, thus correcting any imperfections that could be exploited.

Thus, the motivation and objective of this study is to provide empirical evidence *against* the efficient market hypothesis in financial markets. We base our argument on results yielded by an automated operational strategy designed and implemented in the foreign exchange market.

Nowadays, three theories or hypotheses posit that financial market behavior is efficient in terms of price information processing: the efficient market hypothesis, the random walk hypothesis, and the self-fulfilling hypothesis. These three hypotheses belong to a line of thinking called the skeptical school. Alternative schools of thought explain the way financial markets function by thinking beyond the efficient market hypothesis. Lawrence (1997) grouped these alternative schools of thought into five different categories: technical analysis, fundamental analysis, traditional methods of time series prediction, chaos theory, and computational techniques.

In the present study, we provide empirical evidence to contradict the efficient market hypothesis, which holds that no system can overcome markets. Therefore, if financial markets do not conform to the efficient market hypothesis, it would be possible to develop an optimization method, generate an optimal configuration, and apply it to an autotrading robot for a particular currency pair. This would yield good results for the optimization period (in-sample) and the testing period (out-of-sample). This study's main objective was to find empirical evidence against the efficient market hypothesis. This evidence comes from an autotrading robot. A secondary research aim was to perform financial analysis, by evaluating and exploiting this robot's performance.

Autotrading robots are widely applied in the financial markets. The foreign exchange (forex) market is no exception. More than two thirds of trading operations are performed using these automated systems. This boom in the use of autotrading robots owes to two advances: the emergence of electronic trading platforms with low capital entry requirements, and open programming languages that establish operational routines available to any operator with minimum capital at his or her disposal. Autotrading robots have some advantages. They avoid human errors caused by emotion and subjectivity, are based on statistical methods, and have the capacity to minimize operating costs and time. Disadvantages include the need for advanced programming skills, a reliance on accurate historical data, and a necessity for human analysis of results generated by the program.

This chapter has the following structure. In the next section, *Theoretical background*, we describe the evolution of the efficient market hypothesis and other theories from the skeptical school. We also cite key studies in its favor and in its

opposition. In the *Method* section, we describe the features of the autotrading robot used in this study. We also detail the parameters to be optimized, as well as the optimization and testing method employed. In *Results*, we compare results for each currency pair with exchange-traded funds (ETFs). From these results, we draw conclusions, which are discussed in the final section entitled *Conclusions*.

5.2 Theoretical Background

5.2.1 Efficiency in Financial Markets and the Inability to Obtain Benefits from Trading

The advent of computers in the fifties gave researchers tools to study long time series. This led to the first assumptions in support of financial market efficiency. Kendall (1953) examined the evolution of 22 securities listed on the UK stock market. He noticed a correlation close to zero in changes in market value and thus empirically demonstrated that prices move randomly. This finding resulted in the random walk hypothesis. Shortly afterwards, Roberts (1959) showed that a random series generated from a random number sequence was indistinguishable from records of quotes in the US stock market, which were used by market analysts to make predictions. These findings provided further evidence of the random walk hypothesis. Fama (1965) reviewed the literature on the behavior of stock prices and examined the distribution and serial dependence of stock market quotes. He claimed his findings offered strong, ample evidence in favor of the random walk hypothesis.

Samuelson (1965) enriched the notion of a well-functioning market by introducing the idea that forces other than those of supply and demand can move markets. He stated that markets can also be moved by information that market participants possess or expect to have. This information may change investors' attitudes towards negotiations and therefore influence the market. Following this argument, Fama (1970) laid the foundations for the efficient market hypothesis, defining an efficient market as one in which the negotiation based on available information fails to lead to abnormal profits.

Three theories or hypotheses posit efficient financial market behavior in terms of price information processing: the efficient market hypothesis, the random walk hypothesis, and the self-fulfilling hypothesis.

5.2.2 The Efficient Market Hypothesis

According to the efficient market hypothesis, investors react instantly to any new information, eliminating profit-making possibilities (Dimson and Mussavian 2000; Islam et al. 2005. Prices supposedly always reflect all available information at any

moment. Under this theory, it is impossible to obtain any benefit derived from use of information related to a particular market. (Many economists have nevertheless questioned the validity of this hypothesis theoretically – by using economic reasoning (Neely 1997) – or empirically – by using random time series identification algorithms or other methods that contradict the fundamentals of this hypothesis. These contradictions will be discussed later.) The result is a random movement by the market, which is more random the more efficient the market is. This connects the efficient market hypothesis to the random walk hypothesis. In its most developed interpretation, the efficient market hypothesis posits three degrees of market efficiency (Yao and Tan 2000; Clarke et al. 2001; Santos Arrarte 2007):

1. Weak efficient market: the current market price reflects only past information concerning the movement of prices. It does not include any new publicly available information or private (internal or confidential) information. Thus, using only the patterns of the past it is impossible to make extra profits.
2. Semi-strong efficient market: the current market price reflects all past information concerning the movement of prices and all publicly available information. It excludes private (internal or confidential) information. In this case, investors can make extra profits using only past trends and public information.
3. Strong efficient market: the current market price reflects all past information concerning the movement of prices, all publicly available information, and all private (confidential or internal) information. Even by using all market information, it is impossible to make extra profits.

As discussed below, it seems that markets are not completely efficient as defined by the strong form. There are, however, arguments in favor of market efficiency in weak and semi-strong forms. Arguments in support of semi-strong market efficiency are based on the speed of price adjustment to new information. The main research tool in this regard is the study of events (average cumulative returns of prices over time from a certain number of periods before the event to a certain number of periods afterwards). Ball and Brown (1968) and Fama et al. (1969) conducted the first studies of this kind. They found evidence that markets seem to anticipate information because most price adjustments take place even before information is published and remaining adjustments occur quickly when news is published. These studies demonstrate that prices reflect not only direct estimates of market prospects but also reveal a period of interpretation. It follows that some market agents may find it attractive to act on market information. Grossman and Stiglitz (1980) formalized this idea.

In the last decade, scholars have tried to adapt market efficiency hypotheses to current financial paradigms. Timmermann and Granger (2004) proposed a model derived from the efficient market hypothesis. They added current predictive parameters such as transaction costs, market information costs, and public information available in real time. They concluded that it is necessary to include such variables because the efficient market hypothesis alone cannot explain some market movements.

5.2.3 Random Walk Hypothesis and Other Skeptical Theories

Under the random walk hypothesis, price changes are serially independent, and price history is not a reliable indicator of future prices (Murphy 1999; Dimson and Mussavian 2000; Malkiel 2003; Islam et al. 2005). This statement has been completely rejected by technical analysis studies, which show that any process is completely random and unpredictable for those who do not understand the rules by which this process operates (Murphy 1999; Vanstone and Finnie 2009).

In the mid-fifties, with a better understanding of prices in competitive markets, researchers began to make observations that consistently linked the random walk hypothesis to the efficient market hypothesis. The fundamental premise of the efficient market hypothesis is that investors react instantly to any new information, eliminating opportunity for profit. This means that prices always reflect all available information and no profit can be made from information to do with investment operations, which involves random movements by the market. The more random these movements are, the more efficient the market. So, both scenarios are connected, but there are some distinctions. A random market does not mean that the market is efficient nor that investors are rational.

Fama (1970) claimed that there existed overwhelming evidence in support of a weak form of market efficiency. To support his position, he cited studies supporting the random walk hypothesis, his own contributions, and other research on information contained in historical price sequences.

Finally, according to the self-fulfilling hypothesis, many operators are familiar with graphical patterns of technical analysis, and often act upon them in a similar way, creating a *self-fulfilling trend*. For instance, waves of buying and sales are a response to rising or falling patterns (Murphy 1999). This argument, however, is questionable. Although most operators would agree with a market forecast, not all come to this market at the same time in the same way. In addition, graphical trends are highly subjective, so each investor may interpret or understand them differently at different times. Furthermore, investors cannot cause a significant movement in the market by sheer force of buying and selling, because then everyone would become rich at the same time. Market movements obey the law of supply and demand.

These three hypotheses make up the skeptical school, according to which financial markets behave efficiently. Under this assumption, it is impossible for any investor to make profit from the analysis of prices and information available in markets.

5.2.4   Market Inefficiencies and Opportunities for Profit Making Through Financial Trading

Skeptical thinking depicts investors as rational agents, which means markets should move rationally. According to this school of thought, operations by irrational investors are random and are nullified by operations of other irrational investors. Alternatively, their influence is negligible on account of the overwhelming majority of rational operations (Malkiel 2003). There could be a misunderstanding of market value. Nevertheless, investors' misunderstanding of information available in the market and their capacity to use such periods of uncertainty are so small that they do not conflict with the random walk hypothesis nor the impossibility of obtaining benefits in environments of technical analysis strategies (Dupernex 2007). Arguments against the skeptical school include the following:

- Short- and long-term correlations and major reversal: correlations between prices in short-term time series are non-zero. These price movements can be exploited by investors because observations in those periods follow a definite trend. In the long term, however, this theory does not hold, even if negative correlations are observed. This argument is not considered crucial (Dupernex 2007), despite these small periods of inefficiency that operators can utilize to obtain benefits.
- Overreaction and underreaction from the market: investors could initially overreact or underreact to new information, contradicting the efficient market hypothesis. The correlation observed in the previous point would then be based on the degree of investors' assimilation of this information over time (Clarke et al. 2001; Malkiel 2003).
- Existence of seasonal trends: evidence has been found of seasonal movements or trends in the markets, which unfortunately usually disappear once identified (Murphy 1999).
- Market size: there is a correlation between market size and return on investment: the smaller a market, the higher the return (Dupernex 2007).
- Dividend yields: Some studies expound methods to calculate future dividends based on current market status and its correlation with other elements such as interest rates (Malkiel 2003; Dupernex 2007).
- Value versus growth: in the long run, high-value markets tend to generate more benefits than high-growth markets (Clarke et al. 2001; Malkiel 2003; Dupernex 2007).

These reasons show the possibility of minor market inefficiencies. Since the sixties, scholars (Working 1960; Ball and Brown 1968; Shiller 1981; Debondt and Thaler 1985; Fama and French 1992) have identified market anomalies that contradict the efficient market hypothesis and price randomness.

Malkiel (2003, 2005) reviewed the fundamentals of the efficient market hypothesis, concluding that there are sufficient counterarguments and financial events to prove the existence of anomalies and periods of inefficiency in financial markets.

Likewise, Dupernex (2007) listed the arguments for and against the skeptical school. Upon observing numerous conflicting ideas in studies, he concluded that it is difficult to draw meaningful conclusions in favor of the efficient market hypothesis. He claimed that authors of these studies had used data to seek convergences and obtain the results they wanted. He also asserted that markets could be predicted to some extent, but that any profits from such predictions would be nullified by transaction costs.

Tsang (2009) stated that many theoretical and empirical studies contradict the efficient market hypothesis. He listed a series of anomalies that would challenge even the weak form of the efficient market hypothesis. As often happens in studies that incorporate time series, statistics tend to support expected results, as indicated Dupernex (2007).

Chourmouziadis (2010) conducted an extensive review of literature on the efficient market hypothesis and random walk hypothesis from the past 40 years in various financial scenarios. He concluded that strong results either for or against these hypotheses are inconclusive in most studies.

5.3 Method

5.3.1 Sample

An autotrading robot based on divergence operation signals of the moving average convergence divergence technique (MACD) was used. The data in the optimization and testing processes were historical quotes of major currency pairs from the foreign exchange (forex) market: AUD/USD, EUR/USD, GBP/USD, USD/CAD, USD/CHF, and USD/JPY. The time scale was 1 h. The period stretched from the first trading day in January 2001 to the last trading day in August 2011. Historical data series of quotes were taken from the website FXCodeBase.com.

5.3.2 Autotrading Robot and Preliminary Considerations

Although the MACD technique formed our autotrading robot's core, the robot also included a broad, configurable risk management system. It provided a tool for a powerful and stable application to the study of different currency pairs, and allowed us to set the chronological period. Analysis of the divergence signals of the MACD technique constituted the main negotiating operative criteria incorporated into the operating model and programmed strategy. Four different types of divergence signals can occur:

- Positive divergence in an upward trend: observed when price levels reach a new high but the MACD indicator may not have accompanied this movement and

may have failed to reach a new high. It is a slowdown sign of the current upward trend, which may mean the end of the current upward trend. The autotrading robot will interpret this signal as a potential bearish opportunity.

- Positive divergence in a downward trend: observed when price levels reach a new low but the MACD indicator may not have accompanied this movement and may have failed to reach a new low. It is a slowdown sign of the current downward trend, which may mean the end of the current downward trend. The autotrading robot will interpret this signal as a potential bullish opportunity.
- Negative divergence in an upward trend: observed when price levels are unable to reach a new high but the MACD indicator has reached a new high. It is a sign that the current upward trend has slowed. The autotrading robot will interpret this signal as a potential bearish opportunity.
- Negative divergence in a downward trend: observed when price levels are unable to reach a new low, but the MACD indicator has reached a new low. It is a sign that the current downward trend has slowed. The autotrading robot will interpret this signal as a potential bullish opportunity.

The programming code of the autotrading robot was developed in the LUA 5.1 language (using the LUA Editor and Indicator Debugger modules of the software Indicore SDK 2.0). The code proved to be sufficiently fast in terms of execution time per iteration. It was robust and reliable in all executions, as well as optimization and testing phases, without generating errors during the study process. Using genetic and exhaustive algorithms, we optimized the robot, thereby obtaining the optimal configurations for each currency pair during the in-sample period. The developed optimization strategy allowed us to use the module LUA Strategy Debugger of the software Indicore SDK 2.0. We were thus able to obtain successive approximations with genetic algorithms to limit parameter solutions to lower ranges of values. We then completed the process with an exhaustive iteration when the number of remaining solutions and computational resources permitted us to do so.

5.3.3   Optimization and Testing Methodology

The optimization problem applied to the autotrading robot was to determine MACD parameters m, n, r, minimum account margin to open a new position (%), and equidistance parameter delta to place stop-loss and take profit orders (D). The parameter m is short period exponential moving average, n is the long period exponential moving average, and r is the signal line exponential moving average. The optimization criteria were used to minimize the relative deviation (RD) from annual computations, with a final average liquidity higher than initial capital.

After we set preconditions and values of non-optimizable parameters, the optimization of the autotrading robot during the in-sample period (2001–2007) for each currency pair ran two genetic optimizations and one final exhaustive optimization (except USD/JPY, which needed only one genetic optimization). The first genetic

optimization solved for the equidistance parameter delta (D) until it was between two possible solutions at most. In the second genetic optimization, the parameter D was chosen from these two solutions. The parameter governing the minimum account margin to open a new position (%) was then optimized. Finally, in the exhaustive optimization, the following values were optimized: % and D (bounded above), and the MACD parameters (i.e., periods of short, long and signal line exponential moving average). The optimal solution corresponded to the configuration with lowest relative deviation (RD) and positive final liquidity (higher than 6,000 monetary units, the initial capital for each study period). Notation is as follows:

$$\text{OPT CRITERIA} = \min(RD)$$

$$= \min \sum_{i=1}^{n} \frac{AD_i}{\sum_{i=1}^{n} \frac{\text{FinalLiquidity}_i}{n}}, \quad \text{where} \quad \sum_{i=1}^{n} \frac{\text{FinalLiquidity}_i}{n}$$

$$> IC$$

where n is length in years of the optimization period (2001–2007), IC is initial capital for each period (6,000 monetary units), and FinalLiquidity is final liquidity for a given year:

$$\text{FinalLiquidity}_i = f(\text{OptExh}_i(f(\text{OptGen2}_i(f(\text{OptGen1}_i)))))$$

After obtaining parameters m, n, r, %, and D, optimized for 2001–2007, we performed the testing results for the out-of-sample (2008–2011) period. This required loading the automated operating strategy with the same conditions as those in the preliminary optimization phase, setting the same constant values for non-optimizable parameters, and establishing optimal values resulting from the optimization process. Notation is as follows:

$$\text{Res} = \sum_{i=1}^{n} \text{FinalLiquidity}_i \, f(\text{Opt})$$

where *Opt* is the optimization function whereby optimal parameters were obtained.

5.4 Results

Exchange-traded funds (ETFs) for comparison of returns were:

- Currency Shares Australian Dollar Trust (FXA)
- Currency Shares Euro Trust (FXE)

- Currency Shares British Pound Sterling Trust (FXB)
- Currency Shares Canadian Dollar Trust (FXC)
- Currency Shares Swiss Franc Trust (FXF)
- Currency Shares Japanese Yen Trust (FXY)

Table 5.1 shows the results of returns during the phase to test the optimal configuration of the autotrading robot for different currency pairs. It also shows the comparison between these returns and those of ETFs.

Figure 5.1 shows the aggregate return obtained by the autotrading robot for each currency pair compared with ETFs during the testing phase (January 2008 to August 2011).

Table 5.1 and Fig. 5.1 offer the following insights:

- The average annual returns from the autotrading robot, with the exceptions of AUD/USD and USD/JPY, were mostly high (i.e., GBP/USD and USD/CAD) and in some cases were very high (i.e., EUR/USD and USD/CHF).
- The worst performance was for 2010, with very negative results in the AUD/USD, GBP/USD and USD/JPY. Even so, the robot yielded some very positive results in EUR/USD and USD/CHF for 2010. For some pairings and years, the robot managed only negative returns, but losses were minor.
- Although the average return from the optimization phase should be higher than that of the testing phase, in four out of six cases the average returns during the optimization phase were better in the testing phase: EUR/USD, GBP/USD, USD/CAD, and USD/CHF. This improvement in some pairings was considerable. In addition, in currency pairs where average returns from the optimization phase failed to improve in the testing phase, the value did not decrease significantly: AUD/USD and USD/JPY.
- Performance results did not depend on whether the base currency was USD. Evidence of this is the high average returns from USD/CHF (base USD) and EUR/USD (base EUR).
- Remarkably, aggregate returns were linear for the testing phase of the autotrading robot for EUR/USD and USD/CAD. For USD/CHF, despite having the best profitability, growth was marginally less linear. All other pairs (AUD/USD, GBP/USD, and USD/JPY) followed a similar behavior pattern, characterized by a general fall in aggregate returns in 2010.
- The autotrading robot yielded better average annual returns than ETFs did in four out of six currency pairings (EUR/USD, GBP/USD, USD/CAD, and USD/CHF), with significant differences between returns (in some cases greater than 20 %, but never less than 5 %). In the two cases in which average annual returns from the autotrading robot were below those of ETFs (i.e., AUD/USD and USD/JPY), differences did not exceed 10 %.
- The autotrading robots yielded positive returns for all currency pairs. This was not the case for all ETFs; some yielded negative aggregate returns. The autotrading robot managed to generate positive annual average returns in all

Table 5.1 Results from autotrading robot versus ETFs

| Autotrading robot returns	AUD/USD	EUR/USD	GBP/USD	USD/CAD	USD/CHF	USD/JPY
Average annual return OPT (2001–07)	5.92	18.02	4.24	1.45	7.51	2.62
Average annual return TEST (2008–11)	4.68	21.62	11.44	9.83	23.57	1.60
Average annual return TOT (2001–11)	5.47	19.33	6.86	4.50	13.35	2.25
Aggregate annual return OPT (2001–07)	41.92	126.16	29.68	10.16	52.58	18.31
Aggregate annual return TEST (2008–11)	18.73	86.47	45.75	39.32	94.26	6.41
Aggregate annual return TOT (2001–11)	33.17	111.72	35.53	20.76	67.74	13.98
Aggregate annual return TEST <0 any year?	2010	No	No	No	No	2008
Aggregate annual return TEST lineal?	No	Yes	No	Yes	Yes	No
Corresponding ETF's returns	**FXA**	**FXE**	**FXB**	**FXC**	**FXF**	**FXY**
Average annual return ETF (2008–11)	9.86	0.20	−3.38	1.25	8.55	9.71
Aggregate annual return ETF (2008–11)	39.43	0.79	−13.52	4.99	34.21	38.84
Aggregate annual return ETF <0 any year?	2008	2008, 2010	All	2008, 2009	No	No
Aggregate annual return ETF lineal?	Yes	Yes	Yes	Yes	Yes	No
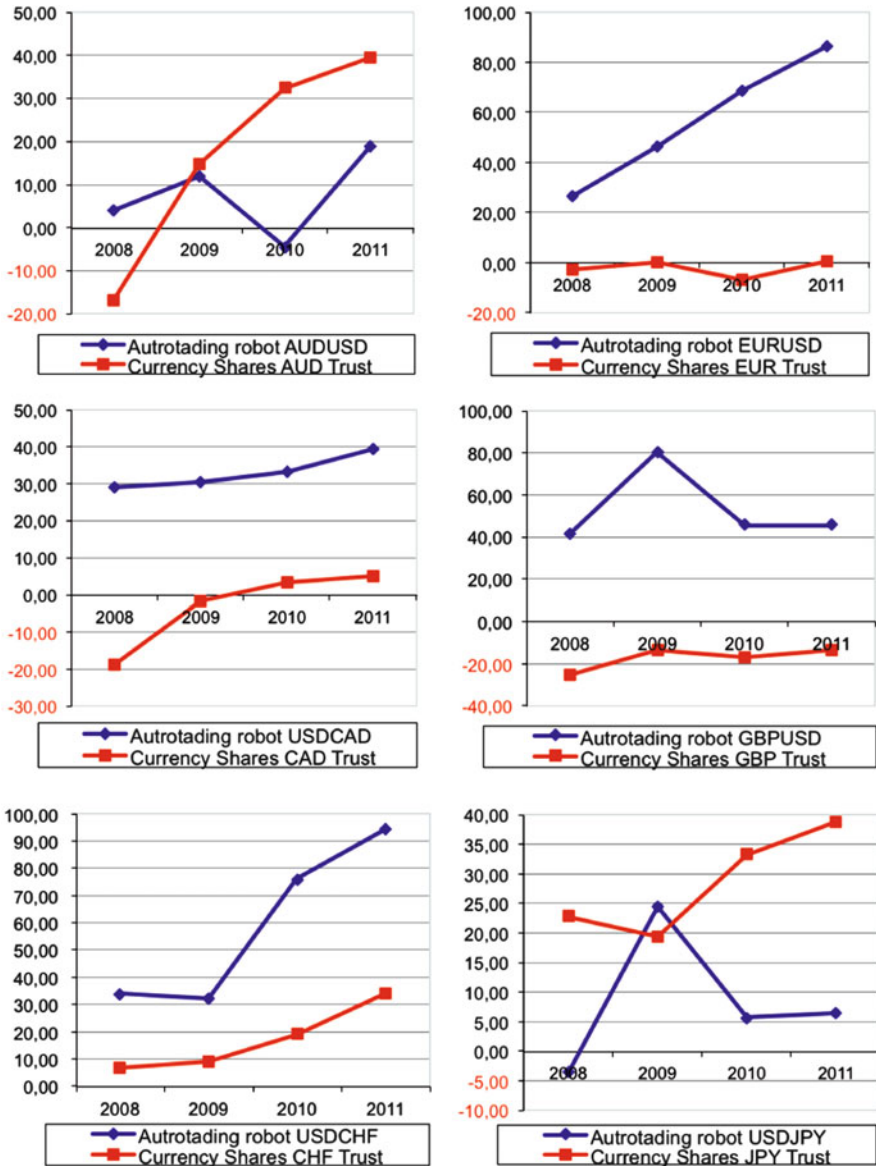
Fig. 5.1 Aggregate annual return of autotrading robot's optimal configuration for each currency pair versus ETFs (testing period: 2008–2011)

currency pairs. Returns ranged from a maximum value of 23.57 % (USD/CHF) to a minimum of 1.60 % (USD/JPY). In contrast, the ETF *Currency Shares GBP Trust* generated a negative average annual return (−3.38 %), and the ETFs *Currency Shares EUR Trust* and *Currency Shares CAD Trust* generated modest average annual returns (from 0.20 % to 1.25 %).

- The partial results for aggregate returns from the autotrading robot were negative only for AUD/USD in 2010 (when the value fell to −4.58 %). In contrast, with the exception of *Currency Shares CHF Trust* and *Currency Shares JPY Trust*, ETFs commonly fell into negative profitability in terms of partial aggregated returns. Negative partial cumulative returns every year from the *Currency Shares GBP Trust* exemplifies this finding.
- Although much lower than that of the autotrading robot (except in two cases), the trends of aggregate returns on ETFs followed a more linear pattern than those of the robot. Exceptions are the pairs EUR/USD, USD/CAD, and USD/CHF, where the trends of aggregate returns were almost linear, especially for EUR/USD.

5.5   Conclusions

The present study demonstrates that trading activity based on technical analysis in a specific financial market can yield positive returns. We used a forex autotrading robot applied to major currency pairs. This yielded positive returns in the testing (out-of-sample) phase based on optimal settings generated in the optimization (in-sample) phase. Overall analysis of results from both phases shows that the optimization process for the autotrading robot was successful for all six currency pairs. In addition, we analyzed whether the optimization process yielded satisfactory returns. (We obtained positive results and satisfactory returns on these currency pairs.) To do so, we compared these performance values with returns from exchange-traded funds (ETFs), which are homogeneous financial products. The autotrading robot outperformed ETFs in four out of six currency pairs.

Our main conclusion is that positive returns on earnings and profits have been generated using a method that contradicts the efficient market hypothesis. This study is therefore yet another piece of empirical evidence against theories that propound market efficiency. Specifically, results refute the efficient market hypothesis, whose foundations date back to the work of Kendall (1953), Roberts (1959), Fama (1965, 1970), and Samuelson (1965). The novelty of this article lies in its approach as an entrepreneurial innovation of great importance for financial markets.

Many authors have tried to broaden the theoretical scope of the efficient market hypothesis (Yao and Tan 2000; Clarke et al. 2001; Santos Arrarte 2007) or have attempted to provide empirical evidence in favor of such a hypothesis (Ball and Brown 1968; Fama et al. 1969; Grossman and Stiglitz 1980; Timmermann and Granger 2004). The present study, however, is closely aligned with research that supports the existence of market anomalies, and that challenges the assumptions of market efficiency and randomness in prices. This movement began in the sixties, and contributions in this vein continue to arise today (Working 1960; Ball and Brown 1968; Shiller 1981; Debondt and Thaler 1985; Fama and French 1992; Malkiel 2003, 2005; Dupernex 2007; Tsang 2009; Chourmouziadis 2010).

In the spirit of research against market efficiency, the present study used historical data to obtain different configurations for an autotrading robot for six currency pairs (AUD/USD, EUR/USD, GBP/USD, USD/CAD, USD/CHF, and USD/JPY). This robot yielded profits (2008 to August 2011) utilizing no information sources other than historical data series (2001–2007). This article provides strong and consistent empirical evidence that contradicts the efficient market hypothesis, and shows that it is possible to develop a financial strategy to profit from forex markets. This represents a contribution to entrepreneurship in finance.

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Chapter 6
What Happed to Companies Backed by Venture Capital Following IPO?

Moez Khalfallah and Jean-Michel Sahut

Abstract This paper examines changes in profitability of 146 Companies financed by Venture Capital (CVC) listed on the French market. The results show disappointing post-IPO profitability. The decline in performance ranges from 9.5 % to 32 % over a 2-year period following the launch on the stock exchange. It also appears that the decline in operating performance is less significant for CVC compared with non CVC over the same period. An analysis of this underperformance shows that CVC supported by reputed venture capital firms manage to limit the decline in operating performance compared to those supported by non-reputed venture capital firms.

6.1   Introduction

Venture capital is central to start-up funding and to the development of upcoming industrial sectors (biotechnologies, nanotechnologies, Internet applications...). The IPO marks a key stage in this type of funding.

Studies on the profitability of Companies financed by Venture Capital (CVC) following an IPO remains few and far between on the American market and even more so for the European market. However, the few studies that do exist note a decline in the operational performance of firms in the immediate aftermath of the IPO. Jain and Kini (1995), Ivanov et al. (2009) on the American market, as Harris et al. (2006) and Wood et al. (2007) on the UK market, confirm the decline in profitability following the firm's IPO compared to its pre-flotation level. The extent and the robustness of results regarding the underperformance of listed firms led the authors to conclude that the managers had taken advantage of their knowledge of the market to launch their companies during bullish market trends.

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Ivanov et al. (2009) examines the operational performance of 830 CVC listed on the American market between 1981 and 2000. He identifies a decline in operational performance following the IPO. However, he shows that the presence of a venture capital firm in the company's share structure has a positive impact on the operational performance of CVC following the launch on the market. He also finds that a higher degree of commitment by the venture capital firm (VCF) resulted in greater profitability.

On the British market, Wood et al. (2007) analysed the profitability of 316 CVC and 274 non CVC listed on the stock exchange between 1985 and 2003. They concluded that there was a decline in operational performance during a 5-year period following listing. They noted that the operational underperformance of CVC was concentrated in the 1998–2000 Internet bubble years. In effect, including the financial crisis period in a study's timeframe appears to have a considerable impact on the CVCs' decline in performance. However, Harris et al. (2006) found a non significant difference between the performance of CVC and non CVC pre- and post-IPO on the British market. On the other hand, CVC supported by reputed VCF outperformed CVC supported by non-reputed VCF. These results are in line with the conclusions by Wright et al. (2002) who identified a positive correlation between the age of the VCF and the performance of listed firms.

To gain more insight into changes in profitability of firms listed on the European markets, Rindermann (2003) selected a sample of 154 CVC newly listed on the French, German and British markets. Overall, the author corroborated the decline in performance for all markets. In addition, national VCF appear to have a positive impact on newly listed CVC.

The paper begins with a review of the literature. The second section focuses on the methodology and hypotheses. The third section presents the sample population used for the study and the tests performed, while the fourth section presents the results of univariate tests. The fifth section explains the determinants of the operational performance of CVC listed on the French market, and the last section concludes.

6.2 Methodology and Hypotheses

6.2.1 Methodology

The aim of the present article is to propose measurements of variations in operational performance in the context of CVC listed on the French market, and then to explain their evolution in the post-IPO period.

We began by selecting a sample population of 146 CVC listed on the French market between 1996 and 2007. We paired each firm in the sample with a benchmark firm based on sectorial and temporal criteria, and then selected profitability as an operational performance indicator. First, we checked the decline in the

performance of CVC following the IPO. We then tested the difference in performance between CVC and non CVC using the Wilcoxon non parametric test. We then identified the determinants of the operational performance of CVC. Finally, a cross-sectional regression model was used to validate the results.

While the nature of firms is different from one study to another, the research hypothesis remains the same. The last hypothesis is as follows: "the nature of business organisations (both CVC and non CVC) generates specific operational performance following an IPO." To check this hypothesis, we conducted a two-stage operation. First, we selected the operational performance indicators and we then identified the most suitable tests in order to test the significance of operational performance.

Most studies on the profitability of newly listed firms take profitability as the key indicator (EBITDA[1]). Opting to use EBITDA meant that we avoided the impact of mechanical leverage on the results (Jain and Kini 1994; Ivanov et al. 2009; Harris et al. 2006).

6.2.2 Hypotheses

6.2.2.1 Decline in Profitability

In line with Jensen and Meckling (1976), we could argue that one explanation for the operational underperformance in the long term may be found in agency theory (i.e. the IPO is at the origin of an increase in agency costs). Jung et al. (1996) suggest that the managers tend to focus more on growing their business, and that the market's negative reaction to the flotation announcement is a reflection of managers' priority to increase the size of their business rather than to maximise shareholders' wealth. This leads us to hypothesis 1:

H_1: Firms experience a decline in their operational performance following an IPO.

6.2.2.2 The Role of Venture Capital Firms

In the long run, VCF want the IPO to be a success and continue to provide the support needed to ensure the CVC performs well on the stock market, thus enabling them to forge a good reputation (Lerner 1994; Espenlaub et al. 1999). From this, we can infer that CVC should outperform non CVC following an IPO, and even if the performance of both CVC and non CVC declines during the post-IPO period, the fall recorded by the CVC will be less significant (Jain and Kini 1995). On the other hand, the difference in performance observed on the US markets could be explained by the experience and the management styles used by American VCF (Hege

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[1] Earnings before Interest, Taxes, Depreciation, and Amortization.

et al. 2003; Landier 2001). However, Rindermann (2003) notes that CVC introduced on the German, French and British markets are no more successful than non CVC. Given the elements mentioned above, our second hypothesis is as follows:

H_2: *The difference in profitability between CVC and non CVC following an IPO is insignificant.*

6.2.2.3 The "Market Timing" Period

The decline in profitability is also coherent with the "timing" theory (Loughran and Ritter 1997). In effect, they note that managers choose to issue shares after an increase in stock prices, and that investors are unable to value the firms correctly at the time of the IPO. They conclude that some issuing firms, although not all, deliberately and successfully mislead investors. The sentiments based on overvalued shares tend to be stronger during so-called "hot" market periods such as the internet bubble between 1998 and 2000 (Ofek and Richardson 2002).

The question now is to know whether, in this context, the support of highly experienced VCF who benefit from greater expertise than the market can immunise CVC against the negative impact of market conditions. We can thus formulate hypothesis H_3:

H_3: *CVC recorded higher profitability post-IPO than non CVC at the time of the Internet bubble.*

6.2.2.4 The Reputation of VCF

Reputed VCF appear to be able to attract and select good quality firms and provide greater added value, which has a positive impact on the global performance of their corporate portfolio (Timmons and Bygrave 1986; Rindermann 2003; Ivanov et al. 2009). However, research conducted to this end on the different markets is inconclusive about whether there is a positive link between a VCF's reputation and the performance of CVC following an IPO.

Sapienza et al. (1996) and Espenlaub et al. (1999) argue that experienced VCF play a key role in providing their corporate portfolio with added value compared to inexperienced VCF. Ivanov et al. (2009) identified the impact of the VCF's reputation on the performance of CVC listed on the stock market using an approach based on instrumental variables. They suggest that not only do the most highly reputed VCF support the post-IPO development of their corporate portfolio, but that this also leads to an improvement in the companies' long-term performance. We put forward the fourth hypothesis:

H_4: *CVC supported by reputed VCF report better post-IPO operational performance than CVC supported by non-reputed VCF*

6.2.2.5   Initial Return

Jain and Kini (1994) used signalling theory to argue that firms with an initially low (or even negative) return put out a positive signal. This signal is reflected through improved profitability of the firms following an IPO. They argue that the low value of firms reduces the additional costs involved to check the true value of listed firms as would be the case with large firms. Krigman et al. (1999), however, use the behavioural approach to explain the inverse relation between initial returns and long-term profitability. We suggest that the signalling theory is confirmed for CVC, which brings us to hypothesis H_5:

H_5: *There is an inverse relation between the initial returns of CVC and profitability following an IPO*.

6.2.2.6   The High-Tech Sector

Ofek and Richardson (2002) developed a study framework inspired by the work of Miller (1977) to show that irrational investor behaviour took hold of the market during the Internet bubble years. This resulted in unrealistic overvaluations, principally in the high-tech sector. In effect, we noted that a large percentage of the CVC in our sample belong to the high-tech sector. This led us to check if the CVC listed in the high-tech sector reported a greater decline in profitability than the benchmark firms listed in the same sector.

H_6: *CVC listed in the high-tech sector report greater operational underperformance than non CVC*.

6.3   Definition of Sample and Descriptive Statistics

6.3.1   Data Collection

We identified all of the firms financed by venture capital listed on the French market between 1996 and 2007, in other words, 184 firms. We then took out all firms that were taken over or merged following the IPO. Finally, all firms that did not report at least two financial years for the IPO study report were also excluded. Our final study thus included a reduced sample of 146 CVC.

The data relative to our sample was collected from several databases. The list of CVC and the accounting information and characteristics of firms were collected from *VentureXpert*, *Thomson Financial, Datastream* and *Worldscope* bases. The missing data in reports of certain observations were completed from the specialised *Diane* database.

6.3.2   Benchmark Sample

In order to highlight the operational performance of newly listed CVC, we used a
benchmark sample comprising firms financed by traditional means and listed on the
French market, which we called "non CVC". In the context of the present study, we
adopted the methodology developed by Barber and Lyon (1996), pairing each of the
CVC in our sample with a non CVC using the following criteria ranked by order of
priority: sectorial criteria (4-figure SIC[2] code), temporal criteria and size criteria.
Adopting this approach enabled us to rule out intra-sectorial variations and tempo-
ral bias on the results.

6.3.3   The Reputation of VCF

The study of the impact of the reputation of VCF on the long-term performance of
listed firms has been widely covered in the finance literature. Jelic et al (2005) and
Harris et al. (2006) measured the reputation of VCF by the number of finance
operations, arguing that a reputable VCF must have at least 3 % of the British
market in terms of number of transactions between 1980 and 1997. In the light of
this study, we identified the total amounts invested by VCF in CVC successfully
launched on the stock market in the period 1980–2007. We then ranked the VCF
according to their market share in decreasing order. Thus, reputed VCF belong to
the ten leading firms in our ranking.[3] It should be noted that when confronted with a
consortium of VCF, we measured reputation by using the second method proposed
by Ivanov et al. (2009), namely the reputation of the investor who owns the largest
share of the CVC capital at the time of the IPO (Table 6.1).

Table 6.1 Classification of VCF according to the amount invested in the French market in the EVC

VCF	Market share (%)
Management	12.5
Siparex Group	8.0
Credit Agricole	5.4
3i Group PLC	4.5
Innovacom	3.4
CDC Entreprises Innovation	3.3
Sofinnova Partners	3.1
Naxicap Partners	2.7
AXA Private Equity	2.7
Banque De Vizille	2.7

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[2] Standard Industrial Classification.

[3] The ten leading VCF also correspond to firms with at least 3 % of market share.

6.3.4 Descriptive Statistics

Given the specificity of our sample, the following section gives a more detailed account of the information relative to our observations (see Table 6.2). We note that the size of the sample CVC is far greater in terms of turnover, total assets, liabilities and stock market capitalization compared to the benchmark firms (non CVC). Thus, panel A shows that the CVC make a median turnover of 26.3 against 12.7 that of non CVC. Similarly, the median value of CVC market capitalization, total assets and liabilities is far greater than for non CVC. These results are in line with the conclusions of Lin and Smith (1998), Megginson and Weiss (1991) and Wood et al. (2007), who also found significant differences in assets, liabilities and market capitalization for the sample CVC and the benchmark sample.

Table 6.2 Characteristics of the sample of CVC listed on the French market between 1996 and 2007

| | Sample | EVC | Non EVC | |
	Median	Median	Median	Wilcoxon signed-rank test
Panel A: IPO's characteristics				
Number of observations	292	146	146	–
Age	10	9	11	−0.453
Turnover (M €)	17.7	26.3	12.9	3.021[a]
Total asset (M €)	24.5	30.5	16.4	2.724[a]
Debts (M €)	9.3	12.1	6.5	2.854[a]
Return on assets	1.6	1.7	1.4	0.518
Net return (M €)	0.9	1.2	0.9	0.565
Net return adjusted[d] (M €)	1.0	1.2	0.9	0.486
Earnings per share	0.4	0.3	0.4	−1.579
Book to market per share	3.5	3.7	3.4	−0.454
Market value (M €)	41.7	59.2	30.5	2.302[b]
Panel B: ratios (%)				
Turnover/Total asset	92.20	89.80	94.90	0.197
Debts/Total asset	53.48	55.41	51.64	2.691[a]
Return on assets/Total asset	6.34	5.77	6.55	−2.744[a]
Net return/Total asset	4.28	3.65	5.04	−2.455[b]
Net return[d]/Total asset	4.29	3.63	5.04	−2.809[a]

Note: The market capitalization and initial return are measured on the first day of flotation. The age of the firm is equal to the difference between the date of creation and the date the observations began

The level of significance is based on the Wilcoxon signed-rank test

"a", "b" and "c": Tests are significant respectively at thresholds of 1 %, 5 % and 10 %

[d]Net result adjusted by extraordinary elements

The comparison of median values of total operational/assets result ratios and net/total asset results indicates that CVC use their capital less efficiently than the benchmark firms (see panel B).

After describing the characteristics of our sample in the year of the IPO as well as that of the benchmark firm, we will now discuss the different hypotheses presented above.

6.4 Univariate Analysis

In line with the work by Loughran and Ritter (1997), Wood et al. (2007) and Harris et al. (2006), we decided to use the median value to estimate key trends. In effect, unlike average value, the median value places less weight on observations.[4] We used the Wilcoxon signed-rank test to test the hypothesis that the median variation of the operational performance ratio level during the pre-IPO and post-IPO periods.

It is clear that profitability is highest in the year preceding the IPO (7.17 %) and that it declines steadily in the years following the flotation. These results appear to confirm the hypothesis of a decline in operational performance of CVC post-IPO. Moreover, the comparison of changes in operational performance measured by profitability shows similar results for the CVC sample and the non CVC. However, the difference in performance between CVC and non CVC indicates better performance by the benchmark firms in the year of flotation and the following year. In line with the conclusions of Harris et al. (2006), we note that the CVC outperform the benchmark firms in year (2). These observations enable us to validate hypothesis H_2.

Thus we identified a decline in the operational performance of CVC listed during the bubble years. However, CVC record a post-IPO operational performance higher than non CVC during the bubble period uniquely in year (2), but it is nonetheless non significant. These results concur with those of Wood et al. (2007) which noted the absence of significant operational performance of CVC listed on the British market during the Internet bubble years. We can thus reject hypothesis H_3.

The study of the impact of the VCF reputation is presented in panel E. Results were confirmed by the presence of a positive and statistically significant difference between the reputed CVC and the non-reputed CVC in the post-IPO period. This difference in performance tends to gradually recede from year (2). From the results of the profitability distribution of CVC according to the reputation of VCF, we can confirm the conclusions of Harris et al. (2006) and Rindermann (2003). In effect, these authors argue that the underperformance of CVC listed on the different stock markets is closely linked to the reputation of VCF leaders. Thus, the presence of

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[4] It is well known that accounting ratios are subject to problems of skewness (Loughran and Ritter (1997). Several authors (Sentis (2001), Wood et al. (2007) and Harris et al. (2006)) prefer to use the median to estimate key trends.

Table 6.3 Profitability of CVC and non CVC listed on the stock exchange in the period $[-1, 2]$

	Median (%)			
	Year (-1)	Year (0)	Year (1)	Year (2)
Panel C: EVC/non EVC				
EVC	7.17	6.54	5.28	5.43
Non EVC	9.45	6.55	5.18	3.44
Wilcoxon test	-3.196^a	-2.917^a	-1.263	1.006
Number of EVC	140	137	132	119
Panel D: bubble effect				
Non bubble EVC	8.49	6.96	6.38	7.46
Non bubble non EVC	9.79	6.44	7.83	5.30
Wilcoxon test	-2.189^a	-1.805^c	-1.364	0.608
Bubble EVC	4.74	6.13	5.14	4.32
Bubble non EVC	8.97	6.69	3.99	3.16
Wilcoxon test	-1.925^c	-1.671^c	-0.343	0.703
Panel E: reputation of VCF				
Reputable VCF	10.92	9.56	9.06	8.06
Non reputed VCF	5.50	5.21	2.23	4.52
Wilcoxon test	2.491^b	2.76^a	2.931^a	2.01^b
Panel F: sector effect				
High-tech EVC	4.51	4.93	2.23	4.19
High-tech non EVC	10.10	7.26	5.75	2.73
Wilcoxon test	-3.797^a	-3.163^a	-2.314^b	-0.564
Industry EVC	9.60	8.54	9.15	8.16
Industry non EVC	7.75	5.52	0.73	1.30
Wilcoxon test	0.355	0.093	2.643^a	2.832^a
Services EVC	8.90	7.08	5.90	5.01
Services non EVC	10.46	6.64	8.05	7.50
Wilcoxon test	-0.087	-0.226	-0.7	0.03

This table presents the median values in profitability for the sample of CVC and non CVC for the years -1, 0, 1 and 2. The sample of CVC is divided into two periods, the bubble (1998–2000) and non-bubble. CVC with non CVC are paired according to sectorial and temporal criteria. A VCF which belongs to the top 10 is considered to be reputed, otherwise it is not reputed
"a", "b" and "c": The level of significance is based on the Wilcoxon signed-rank test

reputed VCF in the capital of listed CVC reduces the decline in profitability (Hellmann and Puri 2002 and Ivanov et al. 2009).

In short, CVC supported by reputed VCF tend to do better during the IPO than CVC supported by non-reputed VCF, which confirms hypothesis H_4.

Panel F shows that the comparison in operational performance of CVC and non CVC from the high-tech sector indicates a negative difference in all of the study periods. This finding supports hypothesis H_5 which stipulates that CVC listed in the high-tech sector display greater operational underperformance than non CVC. Regarding other market sectors, there is a non significant negative median value

difference in the profitability of CVC listed in the service sector compared to non CVC. In the light of the results obtained, we confirm the underperformance of CVC in the high-tech sector compared to non CVC listed in the same sector (Wood et al. 2007) (Table 6.3).

6.5 Determinants of Operational Performance of CVC Listed on the French Market

6.5.1 Regression Variables

In this section, we examine the factors likely to affect the operational performance of CVC following an IPO. Our aim is to highlight the relative importance of each of the explanatory variables in the decline in CVC performance. We used the operational result deflated by the total of assets observed as a dependant variable for the global sample in the initial stages, then for the sample of CVC. To pursue this study further, we assessed these regressions in different periods (years 0, 1 and 2).

The explanatory variables concern firstly the variable (VC) which indicates whether the firm is financed by VCF or not, in line with Wood et al. (2007) and Rindermann (2003). In addition, we introduce a variable into the model that expresses the reputation of VCF (see Ivanov et al. 2009).

We also introduce traditional variables collected from the finance literature that can explain operational performance as a control. These variables describe the firm's ex-ante uncertainty, which is negatively linked to the newly listed firm's stock market performance. Ex-ante uncertainty may be described by the financial leverage (*levier*), the firm's size and the degree of the initial undervaluation (*RI*). The market conditions constitute another control variable. According to Loughran and Ritter (1995) and Wood et al. (2007), firms listed during so called "hot market" periods report performances that are less profitable in the long term compared to firms listed in normal years. In the context of our study, the "hot market" corresponds to the Internet bubble years (*bubble*). In line with Wood et al. (2007), we use the rate of asset turns (*AT*) to capture the impact of turnover deflated by total assets made before the IPO on post-IPO profitability.

The regression model used for the multivariate analysis was based on the work by Ivanov et al. (2009), and may be presented as follows:

$$RE_i = \beta_{0i} + \beta_{1i}RI_3 + \beta_{2i}LnAge_3 + \beta_{3i}LnVM_3 + \beta_{4i}LnBTM_3 + \beta_{5i}Levier_3 + \beta_{6i}AT_3 + \beta_{7i}HT_3 + \beta_{8i}IND_3 + \beta_{9i}Bubble_3 + \beta_{10i}VC_3 + \beta_{11i}Rcp_3 + \varepsilon_1$$

6.5.2 Summary of Results and Interpretation

Firstly, we observe that the initial return has a negative and significant impact on profitability over the course of the year of flotation. In effect, an initial overvaluation appears to explain the decline in profitability during the public company's first

Table 6.4 Determinants of post-IPO operational performance

Independent variables	Expected sign	Dependent variable: Economic profitability					
		Year (0)		Year (1)		Year (2)	
		Specif. 1	Specif. 2	Specif. 1	Specif. 2	Specif. 1	Specif. 2
Constant		−0.012	−0.164^c	−0.035	−0.197^c	−0.103	−0.116
		(−0.25)	(−1.97)	(−0.74)	(−2.27)	(−1.68)	(−1.08)
RI	−	−0.120^c	−0.025^b	−0.100	−0.169	0.214	0.283
		(1.87)	(−2.14)	(−0.85)	(−0.99)	(1.46)	(1.39)
LnAge	+	0.005^b	0.018^b	0.030^a	0.039^b	0.033^a	0.040^a
		(2.45)	(2.12)	(2.76)	(2.47)	(2.59)	(2.20)
LnVM	+	−0.005	−0.002	−0.004	0.005	−0.005	0.006
		(−0.86)	(−0.20)	(−0.61)	(0.49)	(−0.68)	(0.36)
LnBTM	−	0.006	0.023	−0.007	0.004	0.002	−0.005
		(0.77)	(1.55)	(−0.91)	(−0.01)	(0.17)	(−0.43)
Leverage	+	0.097^b	0.121^c	0.005	0.018	0.060	0.049
		(2.22)	(1.94)	(0.12)	(0.28)	(1.08)	(0.59)
AT	+	0.072^a	0.054^a	0.085^a	0.084^a	0.054^a	0.045^c
		(5.35)	(2.68)	(5.64)	(3.71)	(2.80)	(1.74)
HT	−	−0.031	−0.034	−0.030	0.010	−0.053^c	−0.048
		(−1.19)	(−0.78)	(−1.17)	(0.22)	(−1.73)	(−0.96)
IND	−	−0.010	0.011	−0.005	0.079	−0.054	0.025
		(−0.34)	(0.22)	(−0.18)	(1.57)	(−1.44)	(0.43)
Bubble	−	−0.008^b	−0.003^b	−0.034^c	−0.045^c	−0.044^c	−0.062^c
		(−2.40)	(−2.10)	(−1.71)	(−1.85)	(−1.83)	(−1.69)
VC	−	−0.074^a	–	−0.050^a	–	−0.035	–
		(−3.70)		(−2.54)		(−1.42)	
Rep	+	–	0.049^b	–	0.075^b	–	0.047
			(2.42)		(2.19)		(1.17)
Number of Obs.		260	130	225	127	225	114
R^2		0.24	0.19	0.23	0.25	0.14	0.17
Adjusted R^2		0.19	0.12	0.20	0.19	0.10	0.10
F-statistic		7.177^a	2.798^a	7.272^a	3.874^a	3.555^a	2.136^a

The dependant variable is the operational result deflated by total assets, observed in a first "full" sample that includes all the firms (specification 1) and a second sample that comprises just the CVC (specification 2). This performance measure is calculated. The list of firms includes CVC and non CVC launched on the French market between 1996 and 2007. The independent variables are: *Bubble*, a binary variable that takes value 1 if the firm in question was launched during the period 1998–2000 and zero otherwise; *HT (IND)*, a binary variable which takes value 1 if the firm is listed in the high-tech sector (the industrial sector) and zero otherwise; *RI*, the initial return realised during the first day of flotation; *Leverage,* a financial leverage which corresponds to the relation between the accounting value of liabilities and the accounting value of total assets; *LnAGE*, the logarithm of the age of the firm calculated by the difference between the date of creation and the date of the IPO; *LnBTM*, the logarithm for the Book-to-Market ratio of the firm when it launches the IPO; *LnMV*, the logarithm of the market value at the date of the flotation; Asset turns, which represent the turnover ratio deflated by total assets for the year in question; *VC*, a binary variable that takes value 1 if the firm is financed by VCF and zero otherwise; *Rep*, a dichotomous variable that takes value 1 if the CVC is supported by a reputed VCF and zero otherwise. *AT*, the rate of asset turns calculated for the year (−1)
"a", "b" and "c": Conventionally significant tests

year, at least in part. This result supports hypothesis H_5 and is in line with the conclusions of Krigman et al. (1999) and Wood et al. (2007) (Table 6.4).

Respect to the leverage impact on operational performance, the results show that the explanatory power of this variable is confirmed uniquely in the year of the IPO launch. This limited impact may be explained by the arrival of new information and the development of a market history in the following financial years for the firms launched.

It should be noted that the age of firms launched on the market has a positive impact on the level of operational performance. However, the coefficients estimated by the regression model are low, which reduces their explanatory power regarding the post-IPO performance (see Rindermann 2003).

We also observed a significant negative relation between the operational performance and market conditions (bubble years), confirming the "window of opportunity" theory formulated by Loughran and Ritter (1995) and Ritter (1991). However, the low coefficient values enable us keep the impact of the launch period in perspective. These observations are similar for both samples for all the windows considered. Brav and Gompers (1997) confirm the conclusions regarding the "market timing" impact on the performance of firms launching an IPO. Lerner (1994), however, explains this negative correlation by a behavioural approach of VCF.

In addition, we noted that the *AT* variable calculated over the course of the year prior to the IPO had a statistically significant positive impact on the operational performance of firms listed on the stock market for all the regressions estimated. Thus, firms that report a better ratio of asset turns pre-IPO manage to reduce the decline in their performance following flotation. In other words, the higher the performance of firms in the pre-IPO period, the better the operational performance will be. This is coherent with the economic climate theory put forward by Ljungqvist et al. (2006). These results also support the expected profitability theory advanced by Pastor and Veronesi (2005). Regarding the issuers, this seems to confirm the notion that managers are careful to choose the best launch date.

Our findings also show that the negative coefficient of the VC variable is statistically significant. This suggests that the presence of a VCF in the firm's capital at the time of the launch contributes to the decline in the performance of CVC, confirming the difference in performance observed in the univariate study on static data. Our results are in line with Ridermann's conclusions (2003). Thus, the decline in CVC performance may in part be explained by the adverse selection theory.

We observed that the coefficient attached the *Rep* variable is positively significant. This means that the support of reputed VCF helps to reduce the poor performance of CVC post-IPO. These observations concur with the conclusions of Ivanov et al. (2009) who explain the positive correlation between post-IPO performance and the reputation of VCF by two factors :(1) the high selectivity of projects by reputed VCF when selecting funding opportunities (see Ivanov et al 2009) and (2) greater involvement in the management and control of CVC during the different phases of development and even after the IPO (see Gompers and Lerner 1999; Field and Hanka 2001; Baker and Gompers 2003).

Finally, unlike Wood et al. (2007), our findings proved that the high-tech and industry sectors did not account for the decline in performance following the IPO.

It is interesting to note that the quality of the regression models adjustment is relatively good, with an adjusted R^2 between 10 % and 19 %.

6.6   Conclusion

The aim of our research is to present and explain the profitability of CVC launched on the French market in the period 1996–2007. To this end, we took a sample of 146 CVC that we paired with 146 benchmark firms listed on the French market in line with sectorial and temporal criteria.

We identified the phenomenon of decline in operational performance of CVC launched on the stock market in the different periods, observing a decline in profitability ranging between −9.47 % and −31.97 %. These findings concur with studies conducted on the American and British markets. However, the Wilcoxon non parametric significance test was inconclusive for all the windows selected. On the other hand, the performance comparison between the CVC and the benchmark firms shows a negative and significant difference during the year preceding the IPO and the year following the IPO.

The multivariate regression model enabled us to identify a negatively significant correlation between profitability and the initial undervaluation in relation to the price of the offer. We also found a negative impact of the launch period which reinforced the underperformance of CVC during the bubble years. We can conclude that the CVC, particularly the less successful ones, launched an IPO to take advantage of the irrational behaviour of investors during the Internet bubble years.

The results are also inconclusive regarding the certification theory for the whole CVC sample. The estimated coefficients show that the presence of VCF in the firms' capital has a negative impact on post-IPO profitability. This result offers indirect proof of adverse selection. However, the reputation of VCF improves the performance of CVC during the flotation period. Globally, our results offer additional proof regarding the important role played by VCF in the funding of start-ups, especially in the first years a firm becomes public.

Finally, our results may depend on the level of performance of observations in the sample; the use of measures adjusted by the impact of the average and/or measures adjusted by sectorial median helped us to reinforce the robustness of our results.

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Chapter 7
Why Do Some Boards of Directors in Family Firms Outperform Others When Strategizing? Analysing the Importance of Entrepreneurial Orientation

Unai Arzubiaga, Txomin Iturralde, and Amaia Maseda

Abstract The strategic role of the board of directors can be a competitive advantage for family firms. In fact, in medium-sized family firms the more the board is involved in the firm strategy, the better performance it gets. However, this relationship is mediated by some variables that may enhance or inhibit this effect. In this chapter, the impact of the entrepreneurial orientation variable is analysed as a mediator between the strategic involvement of the board of directors (SIBD) and performance. We test these hypotheses by surveying the CEOs of 230 Spanish medium-sized family businesses. The results obtained through the Partial Least Square (PLS) technique show that the entrepreneurial orientation of the family firm has a positive effect on the relationship between SIBD and performance.

7.1 Introduction

In today's generalized crisis environment, it has become very important for companies to find and develop a competitive advantage that will allow them to survive. This requires superlative execution in the planning, development, and implementation of the adopted corporate strategy. It is in this aspect that the board of directors can and should play a differentiating role. According to the resource-based view of the firm, the directors' in-depth knowledge and diverse expertise represent a source of competitive advantage, which can directly lead to superior company performance (Charan 1998; Huse 2007; Stiles and Taylor 2001; Zahra and Pearce 1990). For this reason, the strategic involvement of the board of directors (SIBD) has

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gained an increasing amount of research attention (Pugliese et al. 2009), despite the fact that the empirical evidence is inconclusive (Machold et al. 2011). This may be because the relationship between SIBD and performance may be affected by other factors. In addressing the limitation of previous work, this paper aims to advance the literature by examining one of the main factors that may affect the SIBD-performance relationship. In this sense, we introduce entrepreneurial orientation (EO) as it may play a mediating role in this relationship. Most empirical studies in the literature about the SIBD have focused on large firms, especially large Anglo-American boards (Machold et al. 2011). Nevertheless, most companies worldwide are small and medium sized businesses, specifically family-owned SMEs.

For this reason, it is important to study SIBD and its effects on performance in this type of business, based on the distinctive characteristics of these organizations. In this regard, a number of studies have concluded that family and non-family businesses differ in terms of goals and corporate governance (Randoy and Goel 2003), among other characteristics. On the other hand, the smaller size of these family SMEs restrict their access to financial and human resources and limit their managerial expertise (Forbes and Milliken 1999) compared to the frequently studied large Anglo-American boards. This paper takes its sample from a country experiencing a severe, sustained crisis, which influences the performance of these companies and the actions taken by their boards of directors. In this sense, this paper acquires a greater interest, given the large number of countries facing serious economic difficulties.

The next section provides a summary of the most prominent literature dealing with the concept of SIBD and its direct relationship with performance in the context of family firms. Subsequently, we analyse the indirect relationship between these two concepts mediated by EO. Following this review, we develop some hypothesis. The next section describes the method, −data gathering, measurement of variables, and analysis- before going on to briefly describe the results. The final section discusses these results and offers our main conclusions.

7.2 Literature Review and Theoretical Development

7.2.1 Strategic Involvement of the Board of Directors and Performance

In general, boards of directors focus on shaping the company's mission, vision, and values; identifying important strategic activities; and scanning the environment to recognize trends and opportunities (Hendry and Kiel 2004). This is usually referred to as the board's strategic involvement (Andrews 1981a, b; Baysinger and Hoskisson 1990; Huse 2007; Zahra and Pearce 1990). In fact, boards of directors may assist in strategic planning, especially in family firms, through their influence on the owners (Chrisman et al. 2004), being perceived as essential contributors to

the firm's value creation processes (Pugliese et al 2009), and becoming a source of competitiveness in the long term (Huse 2007).

From this perspective, boards can actually improve a firm's performance through the capabilities and resources that members bring with them. Three of the main contributions of directors are their knowledge, as they are presented as experts with specific knowledge (firm's internal processes); their expertise, as they have general business knowledge and professional experience in strategic problem solving, based on university training and outside work experience (Rindova 1999); and their influence on the speed and breadth of the top management team's (TMT) strategic action capabilities (Kim et al. 2009). These factors have led boards to take a very active role in strategy (Zahra and Filatotchev 2004) affecting the capital elements of strategies (Zattoni and Pugliese 2012) including entrepreneurship and innovation (Fried et al. 1998), strategic change (Westphal and Fredrickson 2001), R&D strategies (Zattoni and Pugliese 2012), the scope of the firm (Tihanyi et al. 2003), internationalization (Sanders and Carpenter 1998), the top management team's performance (Kim et al. 2009) and, the firm's performance (Charan 1998; Huse 2007; Stiles and Taylor 2001; Zahra and Pearce 1990).

These effects are more relevant for SMEs as the communication is more direct and less bureaucratic, and because they have access to limited resources. In this sense, the members of the board are in a better position to contribute to the strategic process by procuring access to critical resources (Hillman and Dalziel 2003). The boards, due to their external connections, may have a direct relationship with the firm's key stakeholders (Zattoni and Pugliese 2012), easing access to resources and their use in the strategic process (Zhang 2010). With this in mind, we propose that a higher SIBD will lead to better performance of the family firm. Therefore:

Hypothesis 1: *The higher the strategic involvement of the board of directors, the better the performance of the family firm.*

7.2.2   Strategic Involvement of the Board of Directors and Entrepreneurial Orientation

Innovation and corporate entrepreneurship (CE) are basic for a sustainable competitive advantage. CE is considered as the results of interactions between board members and the TMT (Zahra et al. 2009) getting the highest results from the EO when firms' strategic reactiveness and flexibility are greater (Green et al. 2008). In this sense, the boards of directors will play a crucial role in the development of CE and innovation.

Firstly, firm managers will take advantage of the general knowledge and expertise of board directors, when scanning the environment and identifying strategic opportunities for developing CE and innovation, sharing useful information and important expertise to choose the right strategy (Zahra et al. 2009). Secondly, based on the specific knowledge of the firm and the wide perspective of directors,

managers will be able to combine these two attributes with the tacit knowledge of family members, increasing the CE of the family firm (Eddleston 2008). Thirdly, board directors will give the company access to different resources from external stakeholders through their networks (Hillman and Dalziel 2003). Finally, the direct influence that the board of directors has on the TMT of a family firm may enhance the EO of the business, as the managers are usually the responsible for operationalizing the strategic plan. For these reasons, we propose that the more the board of directors is involved with strategy, the more EO a family firm will have. Therefore:

Hypothesis 2: The *strategic involvement of the board of directors is positively related to the entrepreneurial orientation of family firms.*

7.2.3 Entrepreneurial Orientation and Performance

Entrepreneurial Orientation (EO) has been defined by most authors as an organizational phenomenon related to the firm's processes, methods, and decision-making activities (e.g., Covin and Slevin 1989; Hughes and Morgan 2007). It was considered a multidimensional construct consisting of three dimensions: innovativeness, risk taking, and proactiveness, and co-varying positively between them. Its first dimension, innovativeness, can be understood in terms of a willingness to reinforce creativity and experimentation by introducing new products or services and technological leadership via R&D in new processes. Moreover, innovativeness might be the key to creating differentiation and undermine competitors (Hughes and Morgan 2007). The second dimension, proactiveness, can be understood as a forward-looking perspective, based on continuous environmental scanning, where firms foresee opportunities to develop and introduce new products to take advantage of being pioneers and of shaping the direction of the environment (Hughes and Morgan 2007), by which they capitalize on emerging opportunities (Wiklund and Shepherd 2005). Thus, proactiveness implies that a firm acts as a leader rather than a follower, even if it is not always the first in seizing new opportunities (Lumpkin and Dess 1996). Finally, risk taking involves taking bold actions such as venturing into the unknown, hiring heavily, and committing a large portion of resources to ventures in the face to uncertainty. In other words, it typifies the degree of manager's willingness to make unsafe resource commitments when the decision has a considerable chance of defeat (Lumpkin and Dess 1996).

For all these, it seems logical to suppose that the more entrepreneurially oriented a firm is, the better its performance will be. In fact, the correlation between the EO of the firm and its performance has been widely discussed conceptually (Covin and Slevin 1991; Lumpkin and Dess 1996), empirically (Wiklund and Shepherd 2005; Covin and Slevin 1989; Hughes and Morgan 2007) and in family firms (Casillas and Moreno 2010; Naldi et al. 2007), achieving concluding results in the sense that EO is positively related to family firm performance. Therefore:

Hypothesis 3: *Entrepreneurial orientation is positively related to family firm performance*

7.3 Methodology

7.3.1 Context of Study and Characteristics of Sample

This study focuses on Spanish family SMEs included in the SABI (Iberian Balance Sheet Analysis System) database for May 2013. Although many criteria can be used to delimit the "family firm" concept, two were selected for this study (Astrachan et al. 2002): whether one family or more (a) had ownership control of the firm and (b) actively participated in its management. We considered 50 % as the minimum percentage of firm equity necessary for firm control (Arosa et al. 2010). At this point, the population under study included 1953 non-listed Spanish family firms. We obtained 232 responses (11.9 % of the sample). Interviewees were CEOs in 68.1 % of the cases and persons responsible for departmental management in the rest of the cases due to their global responsibilities. We used techniques to reduce the potential for response bias.

7.3.2 Measures and Questionnaire Construction

All items used to assess the dependent and independent variables were drawn from previous work published in well-known journals.

Strategic involvement of the board of directors. This scale comprises four items on the 11-point Likert-type scale designed by Machold et al. (2011) and inspired by Minichilli et al. (2009), ranging from 1 = very low to 10 = very high.

Performance. The performance variable was measured on a two-item, following Sorenson et al. (2009) and Vallejo-Martos (2009) on an 11-point Likert-type scale, ranging from 1 = strongly disagree to 10 = strongly agree.

Entrepreneurial Orientation. Firm-level EO, a multidimensional construct consisting of three first-order dimensions (innovativeness, proactiveness, and risk taking), was measured using the 9-item, 11-point Likert type-scale created by Miller (1983) and developed by Covin and Slevin (1989), ranging from 1 = strongly disagree to 10 = strongly agree.

Control variables. We introduced several firm-level variables, including firm size (measured as the log of the number of full-time employees), firm age (measured as the log of the number of years since the firm's founding), family rate in TMT (measured as the percentage of family members in the TMT of the firm), whether the CEO belongs to family or not (measured as a dummy variable), and the generation in control (measured as which generation of the family the CEO belongs to).

7.3.3   Data Analysis

The use of four latent constructs led us to choose structural equation modelling as our analysis method (Fornell and Larcker 1981; Hair et al. 2012). Considering the choice between a covariance-based and a variance-based approach, we decided to use the PLS approach (Lohmöller 1989; Wold 1985) using the SmartPLS 2.0 M3 Software package (Ringle et al. 2005) for two main reasons. First, PLS-SEM is more useful for analysing predictive research models that are in the early stages of theory development (Landau and Bock 2013) than covariance-based structural equation modelling (Fornell and Bookstein 1982). The latter fits well with our research purpose; although the independent variable (strategic involvement of the board of directors) and the mediating factor (entrepreneurial orientation) have been analysed in previous studies, the potential effect of the SIBD through EO on performance has not been evaluated previously. Second, as our study is composed of both reflective and formative measurement scales, PLS-SEM allows the researcher to more easily use both, whereas covariance-based structural equation modelling (SEM) has some limitations when modelling in formative mode (Hair et al. 2012; Henseler et al. 2009).

For estimating whether the relationships in our model are statistically significant, bootstrap percentile confidence intervals were constructed. Each bootstrap sample contains the same number of observations as the original sample (Hair et al. 2011, 2013), whereas the number of bootstrap samples was set equal to 5,000 (Hair et al. 2011, 2013). Furthermore, we allowed for individual sign changes in the bootstrap procedure (Hair et al. 2012; Henseler et al. 2009).

7.4   Results

7.4.1   Evaluation of the Measurement Models

7.4.1.1   Assessment of Reflective Measurement Models

Before estimating the quality of the structural model, we assessed the reliability and the validity of our measurement models (Landau and Bock 2013). We evaluated reliability and validity of our second-order reflective variable, EO, and its first-order reflective dimensions, innovativeness, proactiveness, and risk-taking based on the criteria proposed by Hair et al. (2012) and Henseler et al. (2009). As exhibited in Table 7.1, all reflective indicators are significantly associated with their respective constructs ($p < 0.001$), and all loadings are higher than the critical threshold of 0.7, showing high indicator reliability (Bagozzi and Yi 1988). The reflective measurement models of the second order reflective construct and its first order dimensions show sufficient levels of internal consistency, as the values of the Cronbach's alpha (CA) and composite reliability (CR) exceed the threshold of 0.7

Table 7.1 Validation of the final measurement model-reliability and convergent validity

Source	Constructs	Indicators	First order loading	t-value	CA	CR	AVE
Covin and Slevin (1989)	Entrepreneurial orientation (second order construct)				0.84	0.88	0.44
	Innovativeness (first order dimension)	Inn1	0.79***	87.20	0.77	0.87	0.68
		Inn2	0.85***	173.06			
		Inn3	0.84***	151.38			
	Proactiveness (first order dimension)	Pro1	0.85***	115.73	0.71	0.83	0.62
		Pro2	0.86***	129.72			
		Pro3	0.63***	45.90			
	Risk taking (first order dimension)	Rtk1	0.83***	139.14	0.80	0.88	0.71
		Rtk2	0.86***	149.89			
		Rtk3	0.84***	142.12			

Note: *CA* Cronbach's alpha, *CR* composed reliability, *AVE* average variance extrac
N/A no application
***$p < 0.01$; **$p < 0.05$; *$p < 0.10$

Table 7.2 Discriminant validity

Factors	F1	F2	F3
F1. Strategic involvement of the board directors	N/A		
F2. Performance	0.05	N/A	
F3. Entrepreneurial orientation	0.05	0.09	0.44

Note: Valued in diagonal are the AVE, below the diagonal: squared correlations among factors

(Bagozzi and Yi 1988). The constructs' average variance extracted (AVE) are above the critical value of 0.5 (Hair et al. 2011), excepting for the second order construct (EO) which is very close to it, so as indicating a sufficient convergent validity (Fornell and Larcker 1981; Götz et al. 2010). Moreover, following the criteria proposed by Hair et al. (2014), as there were no loadings lower than 0.4, none had to be deleted. Finally, discriminant validity was estimated by testing unidimensionality based on the cross loadings of indicators and the Fornell-Larcker-Criterion (Fornell and Larcker 1981; Hair et al. 2012; Henseler et al. 2009). All constructs show sufficient levels of discriminant validity (see Table 7.2).

The multidimensional nature of the EO construct required a second-order CFA.

7.4.1.2 Assessment of Formative Measurement Models

The accepted criteria for estimating reflective constructs cannot be applied to formative measurement models because of their different measurement logics

Table 7.3 Reliability and convergent validity of the final measurement model (formative constructs)

Source	Constructs	Indicators	Weight	t-value
Machold et al. (2011)	Strategic involvement of the board directors	SIBD1	−1.04***	8.14
		SIBD2	0.54***	3.4
		SIBD3	0.22***	2.96
		SIBD4	1.14***	13.92
Sorenson et al. (2009) and Vallejo-Martos (2009)	Performance	PER1	0.5***	7.27
		PER2	0.56***	8.08

***p < 0.01; **p < 0.05; *p < 0.10

(Landau and Bock 2013). Therefore, the measurement models of our two formative constructs – the strategic involvement of the board of directors and performance – were evaluated following the steps recommended by Hair et al. (2012) and Henseler et al. (2009). First, we tested for multicollinearity through the variance inflation factors (VIFs), resulting in scored values lower than the very conservative threshold of 5 (Hair et al. 2011). The estimation of indicator weights and their significance using nonparametric bootstrapping demonstrate that all indicators significantly influence their corresponding constructs (Tenenhaus et al. 2005). Although there are differences in the relative importance of the results (see Table 7.3), we maintained all formative indicators (Jarvis et al. 2003).

7.4.2 Testing the Structural Model

The quality of the structural model was evaluated based on the predictive validity using the coefficient of determination in endogenous variables (R^2) (Chin 1998), the regression coefficients' significance (Chin 1998), the VIF at the structural level (Götz et al. 2010), and the Stone-Geisser-Criterion (Q2) derived using the blindfolding procedure with an omission distance of 7 (Tenenhaus et al. 2005; Wold 1985). The values of R^2 for the EO dimensions can be described as moderate to substantial, and for EO, as rather weak (Chin 1998). However, acceptable R^2-values depend on the research context (Hair et al. 2011). Since we analyse a very special second order construct, low levels of R^2 are realistic. The values for VIF are well below the critical threshold of 5, and that of Q2, above the threshold level zero. The Q2, or cross-validated redundancy, should be measured based on the estimation of both the factor scores of the variables' latent history and the instrument of measure of the latent dependent (Hair et al. 2014) Thus, predictive relevance and acceptable levels of multicollinearity of our structural model are confirmed (Götz et al. 2010).

We tested the hypotheses assessing the sign and magnitude of path coefficients and their t-values, obtained from non-parametric bootstrapping, calculating effect size, and total effects (Chin 1998). We find evidence for Hypothesis 1, which

Table 7.4 Hypothesis testing

Hypotheses	Standardized beta	t-value (bootstrap	Result
H1: → Strategic involvement of the Board of Directors → Performance	0.22***	16.61	Supported
H2: → Strategic involvement of the Board of Directors → Entrepreneurial orientation	0.23***	13.66	Supported
H3: → Entrepreneurial orientation → Performance	0.27***	17.82	Supported

R2 (EO) = 0.05; R2 (Innovativeness) = 0.65; R2 (Proactiveness) = 0.69; R2 (Risk Taking) = 0.64
Q2 (EO) = 0.31; Q2 (Innovativeness) = 0.36; Q2 (Proactiveness) = 0.28; Q2 (Risk Taking) = 0.41
***$p < 0.01$; **$p < 0.05$; *$p < 0.10$

proposed a positive association between the strategic involvement of the board of directors and performance (Beta = 0.22; $p < 0.01$). Secondly, we tested Hypothesis 2, which measured the effect of the strategic involvement of the board of directors in the EO variable, which was supported. After, we tested Hypothesis 3, which suggested a positive effect of EO on the performance of the family firm. According to the data, Hypothesis 3 was supported (see Table 7.4).

After testing the three hypotheses of our model, we analysed the effect of EO as a mediator variable. For this purpose, we tested which part of the total effect of the independent variable in the dependent one is attributable to the mediation, which is calculated through the Variance Accounted Factor (VAF) (Hair et al. 2013). Full mediation is confirmed when VAF > 80 %, partial when it is lower than 80 % but higher than 20 %, and not confirmed if it is lower than 20 % (Hair et al. 2013). In our case, the VAF value was 28 %, and thus considered a partial mediation.

7.5 Discussion, Conclusions, and Implications

This study attempts to shed some light on the effect that the strategic involvement of the board of directors may have on the performance of family firms. This relationship, which has been empirically tested in the literature but returning inconclusive results, may be subject to other variables that may reinforce or decrease this impact. In this sense, based on the resource-based view of the firm, our study tested the mediating effect that the EO variable may have on the impact of the SIBD on family firm performance. In this sense, our empirical results support the three hypotheses, showing this mediating effect. The first one, which says that the strategic involvement of the board of directors enhances the performance of the family firm, reinforces the importance that the board members have in the success of the family business. Indeed, according to the resource-based approach, directors' in-depth knowledge and diverse expertise represent a source of competitive advantage, which can lead directly to a firm's superior performance (Charan 1998; Huse 2007; Stiles and Taylor 2001; Zahra and Pearce 1990).

Regarding Hypothesis 2, the empirical results suggest that the SIBD, based on its members' general knowledge and expertise, will allow firm managers to take advantage when scanning the environment and identifying strategic opportunities to develop CE and innovation and combining firm knowledge with the tacit knowledge of family members, increasing the corporate entrepreneurship of the family firm (Eddleston 2008). Third, the empirical test supports the hypothesis that the EO positively affects the family firm performance, as it has been largely concluded in family firm literature (Casillas and Moreno 2010; Naldi et al. 2007). Focusing on the three dimensions of EO – innovativeness, proactiveness, and risk taking – the literature shows that the more entrepreneurially oriented a firm is, the better its performance will be.

From a managerial perspective, the positive conclusions about the SIBD in the performance of the family firms may be helpful to medium-sized family businesses when deciding whether to create a board of directors. This decision, which usually has some negative reactions from some family members because of their fear of losing the control of the firm, will positively affect the performance of the family businesses.

This study has several limitations. One is that the sample is focused on a single country (Spain) whose economy has several specific characteristics which may affect the behaviour and performance of family firms. Another is that this study is based on cross-sectional data, which makes it difficult to ensure that the causal relations identified in the results will not vary or lose their significance over time.

Finally, this study provides some opportunities for future research. One possibility is analysing the effect that other variables apart from EO, like technological opportunities and family involvement, may have in the relationship between SIBD and the performance of family firms. Another possibility may be replicating it in different geographical contexts and using different samples.

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Chapter 8
The Effect of Entrepreneurial Orientation on Results: An Application to the Hotel Sector

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Abstract The aim of this work is to investigate the impact of entrepreneurial orientation (EO) on the performance of firms belonging to the hotel industry. To do so, an empirical study is carried out with a sample of 79 independent hotels, all located in the south of Spain. The results suggest that there is a significant and negative result between EO and financial performance, measured in objective terms. This result is due to the willingness to innovate, to take risks, to carry out self-directed actions and be more proactive and aggressive than competitors entailing a cost for the organization which has a negative short-term effect.

8.1 Introduction

Entrepreneurial orientation (EO) has been one of the aspects most studied in the literature on entrepreneurship in recent years (Covin et al. 2006; Lumpkin and Dess 1996; Wiklund 1999; Wiklund and Shepherd 2003), both from a theoretical and empirical point of view. This has given rise to a broad body of knowledge (Rauch et al. 2009). The academic literature proposes that an entrepreneurial firm is one that is committed to innovation, which is willing to take risks and that is a pioneer in incorporating innovations, moving ahead of its competitors in the market (Rodrigo-Alarcón et al. 2013). A review of the studies shows the importance of this factor for the firm's survival and for the improvement of its results (Wiklund 1999; Wiklund and Shepherd 2005). Nevertheless, most works have centered on the manufacturing sector. Research in the tourism area – and specifically in the hotel sector – has been more limited (Tajeddini 2010).

The hotel industry is currently subjected to constant competitive pressures and is faced with customers who are more demanding, in a globalized environment which

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has continuous technological changes. The present context of the hotel sector in Spain is characterized by its high percentage of independent owners. They find it increasingly more difficult to differentiate themselves, to reach the international customers who allow them to increase their rates – bordering on minimum historic levels – and to increase their occupancy rate by being accessible to a greater client base of potential customers. These factors give rise to fresh challenges and cause firms to be forced to take advantage of new market opportunities (Ireland et al. 2001) in order to maximize their results.

The difference in the size of hotels belonging to chains compared to those that are independent (161 versus 51 rooms) and the constant increase of properties controlled by chains reflects a growing trend toward concentration in the Spanish hotel sector. The results of technical efficiency (68.61 % against 60.84 %) and productivity (7.44 % versus 3.81 %) suggest that hotels in chains are more productive. Three factors support this conclusion: significant scale economies due to a greater average size; the developing of a more flexible expansion of current assets (with a lower risk) and the increase in applying technologies which allow a more dynamic adaptation to customers' demands (Such Devesa and Mendieta Peñalver 2013). Independent properties have to be more competitive if they wish to survive in the medium and long term. It is essential for these establishments to have a greater differentiation, to incorporate technological innovation in their production processes and to increase their cooperation level.

The aim of the present work is to analyze the relationship between EO and performance in the hotel industry. To do so, a review of the literature is first carried out and the research hypotheses are proposed. Next, the empirical study is developed, using primary data from a sample of 79 hotel firms, as well as secondary data published in the SABI database. Finally, the results are discussed and the limitations and future research lines are set out.

8.2 Theoretical Background

8.2.1 Entrepreneurial Orientation

Entrepreneurial orientation (EO) "refers to a firm's strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods, and practices" (Wiklund and Shepherd 2005, p. 74). By EO we mean the strategic process through which firms identify new opportunities and develop entrepreneurial actions (Dess and Lumpkin 2005). This concept not only implies the process of launching a new firm, it also represents a continuous behavior which fosters the identifying and developing of new businesses to achieve a competitive advantage that is sustainable over time.

The concept arises with the work of Miller (1983), focused on the organization's entrepreneurial activity, far from the perspective of the individual entrepreneur that

had been the central aspect of research since Schumpeter. Miller (1983) proposes a definition of the entrepreneurial firm which has been broadly used in later research. Traditionally, the strategic positioning of an entrepreneurial firm has been directly related to the concepts of innovation, pro-activeness and risk-taking (Covin 1991; Covin and Slevin 1991; Khandwalla 1977; Miller and Friesen 1982; Wiklund and Shepherd 2005). Lumpkin and Dess (1996) add two dimensions – competitive aggressiveness and autonomy – which show specific and relevant aspects of entrepreneurial behavior.

Innovativeness refers to the degree to which a firm backs new ideas, novelty, experimentation and the creative process in introducing new products or services, moving away from existing technologies and practices (Lumpkin and Dess 1996). Pro-activeness represents a posture of anticipating the environment's changes and opportunities, thus encouraging a competitive advantage over their competitors (Hughes and Morgan 2007; Lumpkin and Dess 1996). Risk-taking is associated with the willingness to commit resources in projects whose success is not guaranteed and in which the cost linked to failure may be high (Miller and Friesen 1978). "Competitive aggressiveness refers to a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace" (Lumpkin and Dess 1996, p. 148). Firms that manage to aggressively weaken their competitors limit the capacity of these competitors to anticipate and respond to their future actions (Hughes and Morgan 2007). Finally, autonomy refers to an individual's or a team's independent action of backing an idea and developing it until it is completed. It means the capacity to independently manage opportunity seeking (Lumpkin and Dess 1996).

8.2.2 Entrepreneurial Orientation and the Organization's Results

The study of the nature, antecedents and consequences of EO has been tackled over the last 20 years. A special emphasis has been given to analyzing the relationship between EO and business performance.

According to the literature, EO favors the achieving of superior performance (Covin and Slevin 1991; Zahra 1991; Zahra and Covin 1995). In this perspective, it is upheld that EO is a means of differentiating the firm's offer with respect to its competitors, promoting the achievement of a competitive advantage (Guth and Ginsberg 1990; Lumpkin and Dess 1996; Zahra and Covin 1995) which is fundamental for the firm's survival and growth (Damanpour 1991; Deshpande et al. 1993; Hult et al. 2004; Knight and Cavusgil 2004; Williams and Shaw 2011). EO allows market opportunities to be anticipated in such a way that the development and introduction of new products or services is encouraged and the firm can enjoy the advantages of being a pioneer (Miller 1983). The benefit obtained via EO is based on anticipating and exploiting the different opportunities which arise, so that the

firm can introduce new products, establish the industry's standards and control the market and the distribution channels (Wiklund 1999). These firms will be the first to segment the market and position themselves. They will be able to choose the best market segments while designing cream-skinning price strategies. All of this can be done in advance of their competitors (Zahra and Covin 1995). Firms with EO can respond quickly to the changes of the environment and capitalize on new economic opportunities. This circumstance gives them an advantageous competitive position which allows them to attain better results than their competitors (Wiklund 1999).

Yet EO requires a firm to commit many resources in risky actions and strategies, and in uncertain environments, all without knowing the correct actions which should be carried out. This therefore generates a high opportunity cost (Hughes and Morgan 2007).

From the empirical point of view the results are mixed. Though most works show a positive and significant relationship between EO and business results in different contexts (Covin and Slevin 1990; Wiklund 1999; Wiklund and Shepherd 2003, 2005; Zahra 1991; Zahra and Covin 1995), others have not been able to verify the existence of a positive relationship (Baker and Sinkula 2009; Gómez et al. 2010; Hart 1992; Morgan and Strong 2003; Smart and Conant 1994; Walter et al. 2006) or have detected an inverted U-shaped relationship (Tang and Tang 2012).

Neither does there seem to be a consensus regarding the effects on results from a time perspective. While some authors uphold that the effect is quick and short-term, others sustain that it remains and even increases in the long term (Madsen 2007; Wiklund 1999; Zahra and Covin 1995). From the agency theory perspective, it is argued that managers are not inclined to adopting an EO due to the risk of developing its activities. According to this approach, results are attained in the long term, while in the short term there may be a negative repercussion on results (Pinillos et al. 2005).

In the tourism area, firms which have high levels of EO have a greater tendency to be innovative and proactive in the development of new tourism products and services.

EO can be considered a critical factor for the development of tourism products and to improve competitiveness (Hjalager 2010; Tajeddini 2010). "EO can be viewed as a strategic orientation that has the potential to equip a firm with the capability to overcome its resource inadequacies, and to leverage existing competences and resources in identifying and exploiting tourism opportunities" (Roxas and Chadee 2013, p. 4).

According to these theoretical bases, we propose the following hypothesis:

H: EO is related to firm performance in the hotel industry

8.3 Methodology

8.3.1 Sample

To verify the hypothesis proposed, a personal interview was carried out with managers of three and four-star independent hotels located in the Andalusian regional community. Likewise, use was made of the information contained in the balance sheets deposited by firms in the Commercial Register and published in the SABI database. The data collection finished with 79 duly filled out questionnaires. The data analysis used the SPSS 22 and SmartPLS 2.0.M3 statistical programs.

8.3.2 Measurement Scales

Entrepreneurial orientation (EO) – to measure EO, we used a scale with 14 indicators, adapted from Lumpkin and Dess (1996) and validated in previous studies. This scale considers EO to be a multidimensional construct, made up of five dimensions: Competitive aggressiveness (EOA), Autonomy (EOAU), Innovativeness (EOI), Pro-activeness (EOP) and Risk-taking (EOR). These dimensions do not need to co-vary to describe a firm as entrepreneurial (Arzubiaga et al. 2012). This implies that a firm can obtain high scores in some of the dimensions and not in others and even so have an EO (Lumpkin and Dess 1996). In this case, the idea that EO dimensions tend to vary independently instead of co-varying endows them with the character of formative constructs.

Results- to measure the firm's results, we use a scale of four objective indicators of results: incomes, operating result, economic profitability and financial profitability. All of them are extracted from secondary information published in the SABI (Iberian Balance Sheets Analysis). The data contained in this base come from official sources, such as the Commercial Register and the Central Companies Registry Bulletin (BORME). The model proposed is shown in Fig. 8.1.

8.3.3 Data Analysis

Data analysis begins with the valuation of the first-order measurement model. This leads to the refining of the scales with reflective indicators. The evaluation of the measurement model involves the analysis of the item's individual reliability, the internal consistency or scale reliability, its convergent validity and its discriminant validity. The following tables show the values of all these measurements for the first-order model, entirely made up of reflective indicators (Tables 8.1, 8.2 and 8.3).
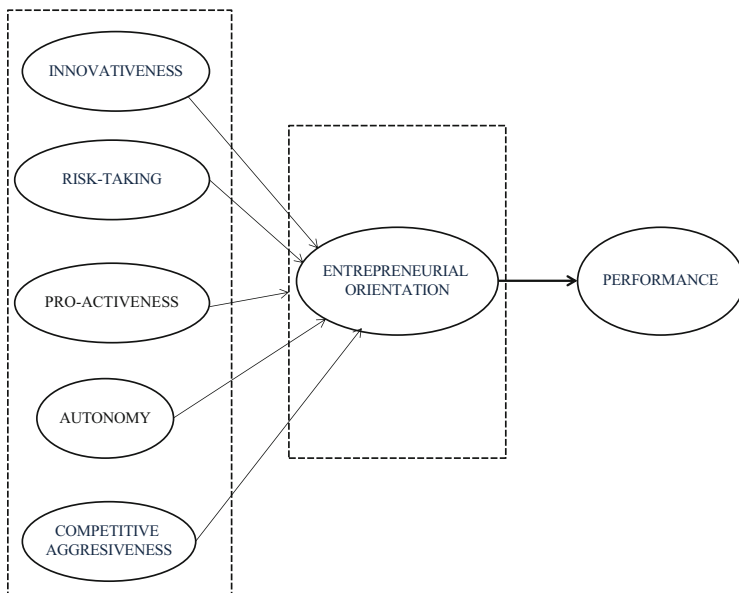
Fig. 8.1 Conceptual framework

Table 8.1 Individual item loading

	EOA	EOAU	EOI	EOP	EOR	Performance
EO1	0	0	1	0	0	0
EOIO	0.8622	0	0	0	0	0
EO11	0.76	0	0	0	0	0
EO12	0	0.809	0	0	0	0
EO14	0	0.7694	0	0	0	0
EO5	0	0	0	0	0.9085	0
EO6	0	0	0	0	0.951	0
EO7	0	0	0	0.8322	0	0
EO8	0	0	0	0.803	0	0
EO9	0	0	0	0.938	0	0
FINPROF	0	0	0	0	0	0.8824
PROFITAB	0	0	0	0	0	0.7713

Having finished the process, and after removing four items from the EO scale and two from the Results scale, we can confirm the suitability of the measurement model's reliability and validity.

As the EO dimensions are considered to be formative, to evaluate the second-order measurement model, it is necessary to analyze the multicollinearity of the dimensions, and the value and the statistical significance of the weights. Following the indications of the theory, we use the two-step approach to do so. We therefore work with the scores calculated by the program for each of the first-order

Table 8.2 Composite reliability and AVE coefficients

	AVE	Composite reliability	R square
EOA	0.6605	0.7949	0
EOAU	0.6233	0.7678	0
EOI	1	1	0
EOP	0.7391	0.8943	0
EOR	0.8649	0.9275	0
Performance	0.6868	0.8136	0.1917

Table 8.3 Correlation matrix. Diagonal elements (values in parentheses) are the square roots of the AVE

	EOA	EOAU	EOI	EOP	EOR	Performance
EOA	(0.8127)	0	0	0	0	0
EOAU	0.4412	(0.7894)	0	0	0	0
EOI	0.2406	0.1998	(1)	0	0	0
EOP	0.4252	0.1295	0.2296	(0.8597)	0	0
EOR	0.373	0.2946	0.2212	0.5344	(0.93)	0
Performance	−0.3712	−0.2152	−0.238	−0.2039	−0.0435	(0.8287)

components. The following tables show the results for the second-order measurement model (Table 8.4).

All the VIF values are less than 5 and their tolerance levels are over 0.2. This implies that there are no problems of multicollinearity (Kwong and Wong 2014) (Table 8.5).

Three of the EO formative scale's indicators (EOAU, EOI and EOP) are not significant. In spite of this, and following the recommendations of Roberts and Thatcher (2009), we opt for keeping them. As they are part of a formative scale, removing them would involve the loss of relevant information. Nevertheless, this lack of statistical significance must be taken into account when drawing conclusions.

Having concluded the analysis of the measurement model, we present the results of the structural model. As can be seen in Fig. 8.2, the relationship proposed in the research hypothesis is confirmed, as the value of the path coefficient is significant. It can therefore be confirmed that there is a significant relationship between EO and the firm's results. The R^2 value indicates that EO explains 19.17 % of the variance of the results. Moreover, the sign of this coefficient indicates that this relationship is negative.

Table 8.4 Tolerance and VIF values in SPSS output

Model	Coefficients		Standardized coefficients	t	Sig.	Statistics	
	B	Std. error	Beta			Tolerance	VIF
1 (Constant)	−454362290	0.105		0.000	1.000		
EOA	0.315	0.130	0.315	−2.423	0.018	0.657	1.522
EOAU	0.088	0.121	0.088	−.727	0.469	0.757	1.320
EOI	0.160	0.11	0.160	−.1446	0.153	0.905	1.105
EOP	0.132	0132	0.132	−996	0.322	0.631	1.584
EOR	0.206	0.130	0.206	1.581	0.118	0.655	1.527

Table 8.5 Outer model weights and significance

	Weight	Loading	Weight T-value
EOA	0.7184	0.8478	3.22**
EOAU	0.2009	0.4915	0.63
EOI	0.3652	0.5435	1.71
EOP	0.3014	0.4657	1.12
EOR	−0.4697	0.0993	2.13*

$t(0.05; 4999) = 1.964726835$; $t(0.01; 4999) = 2.58711627$; $t(0.001; 4999) = 3.310124157$ *$p < 0:05$; ** $p < 0:01$; ***$p < 0:001$
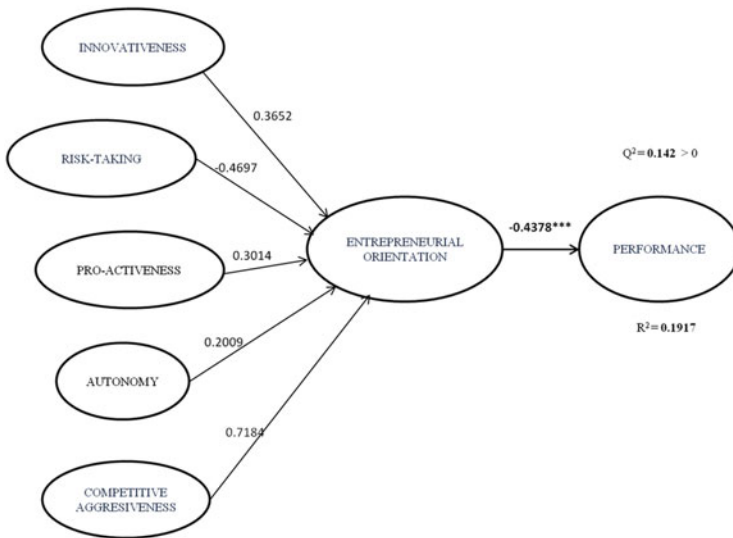
Fig. 8.2 Structural model analysis

8.3.4 Discussion of the Results

The data analysis shows various relevant questions. Firstly, the relationship between EO and the firm's financial results is confirmed: EO explains 19.17 % of the variance of the results and has a high statistical significance. Yet the relationship has a negative sign. This indicates that EO negatively affects the firm's results. This finding contradicts a good part of the previous research. There are indeed some studies which have not found a relationship between EO and results (Baker and Sinkula 2009; Gómez et al. 2010; Stam and Elfring 2008), but there is more evidence of there being a positive relationship between both variables (Keh et al. 2007; Rauch et al. 2009; Runyan et al. 2008; Wiklund 1999; Wiklund and Shepherd 2005). Hardly any research has found a negative relationship. Nonetheless, this relationship can be explained, based on the very concept of EO.

Firms with an EO are more innovative, have a lower risk aversion and adopt a proactive attitude toward the environment. They therefore show a greater competitive aggressiveness and a certain inclination to independently manage opportunity seeking (Lumpkin and Dess 1996). All these EO characteristics involve a cost for the organization, as this active opportunity seeking entails investments in innovation, commitments to risky operations and competitive attacks which need the engaging of financial resources. In the short term, the firm's results will therefore be negatively affected by this orientation. In the same line, Lee et al. (2001) uphold that the effect of EO on the firm's results is delayed at least 2 years. Therefore, 2 years are necessary for EO to have a positive effect on the results. For their part, Stam and Elfring (2008) suggest that firms often do not ensure that EO leads to better results due to their lacking the strategic resources necessary for this to occur.

On the other hand, the analysis of the weights of the EO construct allows us to hierarchize its formative dimensions for the sector and context analyzed. It seems that competitive aggressiveness is the dimension which gains most relevance for the confirmation of an entrepreneurship-oriented culture. Ranked by relevance, this is followed by innovativeness, pro-activeness, autonomy and risk-taking. All of them have a direct and positive effect on the formation of EO. With respect to competitive aggressiveness, the study indicates that the attention paid to establishing aggressive competitive postures is greater than the concern shown for innovation. In the context analyzed, the latter is particularly revealed in the adopting of new information technologies. This may be due to the high competitive intensity of the sector analyzed. The risk-taking dimension has the least weight in the EO configuration of the independent hotel firms analyzed. This evidence can be the result of the difficult conditions of access to finance in our country caused by the economic crisis. These have brought about a more conservative attitude regarding investments.

8.4 Conclusions and Future Research Lines

The results of this research show that EO can have a negative effect on an organization's short-term results. This finding can be relevant for firms in the hotel sector analyzed: independent hotels beset by the need to find competitive advantages to compete with large hotel chains. There is undeniably a need to engage in business venturing, to innovate and to bank on proactive postures. Nevertheless, the results of this opting for entrepreneurship are not achieved immediately. Therefore, the short-term point of view which tends to guide the actions of these independent hotels leads them to consider entrepreneurship to be a bad strategic option. The success of this orientation requires a medium and long-term commitment.

On the other hand, this orientation requires the undertaking of a series of financial and human resources that a small hotel firm may not have available. The management of these establishments tends to lack training possibilities. This limits

the adopting of actions linked to entrepreneurship. Furthermore, in the current conditions of the environment, the access to credit and financing has become an important competitive barrier for most firms in the sector, and is especially influential in the case of independent hotels. Therefore, to contribute to maintaining this business sector, the support of public administrations in these two aspects must be considered.

Various limitations prevent the generalizing of this study's results. Firstly, the transversal nature of the research makes it difficult to establish causal relationships. A longitudinal study that considers the effect of EO on the results of several years could shed light on the relationship analyzed and let us know if the effect of EO on results is really shown in the medium or long term. On the other hand, all the organizations considered belong to the hotel sector and are independent hotels. The analysis of hotels belonging to chains would help us to learn if there are differences in the effect of EO on results caused by belonging to a group of establishments. A greater variety of antecedents of results could also be considered, as well a larger number of indicators of results.

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Chapter 9
The Stock Market as an Alternative to Banks for the Financing of New Business Projects: Business Angels

Rubén J. Cuñat Giménez

Abstract Since 2008 there has been a steady decrease in the number of loans granted to families and companies. This decrease has significantly affected the birth of new business projects, and has led newly created companies to seek funding from the stock market to support and to develop their initiatives. One stock market financing alternative that has grown considerably in recent years is the Business Angels. Not only do they provide capital to new business projects, but also knowledge, professional and business contacts and confidence.

This paper examines the profile of the projects in which the Business Angels are investing, as well as their role in supporting and providing an impetus to new initiatives that contribute to generating wealth and employment.

9.1 Introduction

One of the main difficulties faced by new entrepreneurs is the lack of resources and financial backing for the start-up of new business projects. This problem has been worsened by the negative economic backdrop in recent years, which has resulted in the retraction of available credit and a heavy cut in funding sources. In 2008–2012 the total amount of credit in Spain dropped by 14.2 %, according to sources of the bank of Spain, and only since 2013 has there been a slight 1.5 % increase in credit.

In Spain, aside from the funding sources initially relied on by business initiatives in their first stage of growth 3Fs (family, friends and fools), and as can be seen in Fig. 9.1, the main source of funding continues to be banks.

Banks have traditionally been shown to be more effective when long-term financing is required, due fundamentally to the fact that they have a closer connection with management and its economies of scale, and to the fact that they analyse and reduce risks by demanding guarantees or limiting the amount of credit provided

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Fig. 9.1 External sources used to fund business initiatives in Spain. Year 2010. GEM data (Source: Hoyos (2013))

(Maroto and Melle 2001). Nevertheless, because greater importance is placed on guarantees and securities than the viability of the business project, this type of financing significantly limits the possibilities for the creation and consolidation of many projects.

Entrepreneurs also currently encounter many barriers impeding their access to bank financing, and therefore they have a need to resort to the market to attract funding for their new businesses. The advantage of stock markets is that there are a large number of investors, and moral risk can be minimized through the ongoing appraisal of the indebtedness of the future project and its risk position. However, while banks define terms and maturity dates with reference to the risk positions of the borrowers and to the current economic backdrop, the markets place their instruments with long-term and fixed rates, which give rise to lower negotiation and transaction costs for lenders, and more stable financing conditions for borrowers.

Following the international trend among the most developed countries, Spain is undergoing a debanking process, although to a lesser degree than in other countries. The weight of market financing as compared to banking credit in Spain was 20 % in Spain in 2010 (Spanish Securities & Exchange Commission -CNMV 2010) while in Italy, Germany and France, it was around 30 %, 45 % and 55 %, respectively. This is different from countries which are traditionally more oriented to capital markets, such as the United States and the United Kingdom, where the relative weights are 70 % and 65 %, respectively.

Additionally, in Spain there is a combination of both less developed markets and a trend for venture capital funds to be aimed mainly at more stable and increasingly more mature companies (private equity), which causes them to be less likely to provide backing for higher risk companies in earlier stages of growth. In this context, the informal segment of business funding sources acquires greater prominence (Mason 2006). Such informal investment encompasses the previously mentioned 3Fs, professional investors (Business Angels) and other funding sources which have not yet been fully developed in Spain and which are subject to regulatory uncertainty, such as crowdfunding.

The aim of this chapter is to identify appropriate business funding sources for new business projects in the seed and start-up stages. It focuses on the role of the Business Angels as informal investors. Such investors become key figures for newly created business that have exhausted their primary financial resources (personal savings and 3Fs), but are still unable to resort to bank financing in competitive conditions or to venture capital funds.

This chapter is structured as follows: The second section explores the main alternatives to the banking system currently being used by new entrepreneurs in Spain. The third section then focuses on the role of Business Angel for the support and development business of new projects. The fourth section provides examples of successful companies created with the aid of Business Angels, and the last section presents our main conclusions.

9.2 Alternatives to Bank Financing for New Business

As observed in the introduction, Spain is a traditionally tied to bank financing, given that the largest percentage of funds provided to companies come from these financial institutions. The reality is that when an entrepreneur decides to develop its idea of business and to set it in motion, one of the main problems he faces is that he must convince a financial institution that his business plan is viable and realistic. Even if he is capable of doing so, the difficulty in obtaining resources is high, given that the bank relies on guarantee criteria which it is difficult for an entrepreneur to meet in the case of projects which are subject to uncertainty and risk.

Figure 9.2 shows the funding sources available to entrepreneurs in the initial phases of seed and start-up. In the early stages many start-ups confront a critical
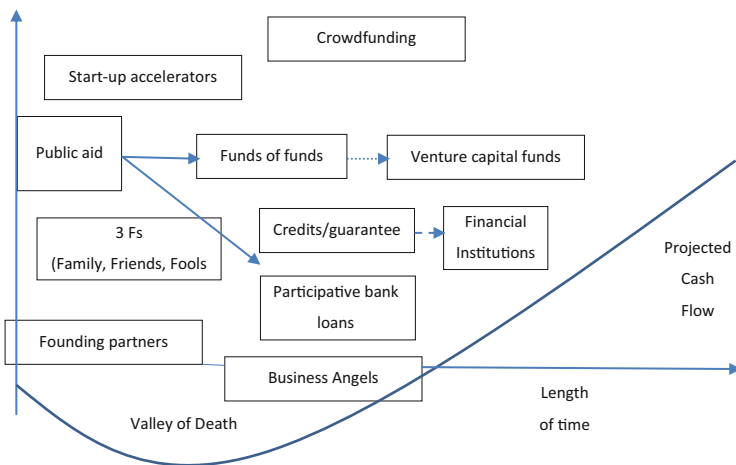
Fig. 9.2 Seed and start-up business funding sources (Source: Report GEM Spain 2013 and compiled by author)

initial period in which losses are foreseen (known as "valley of death"), and therefore traditional credit lines do not adapt to the needs of the new project. For this reason equity financing is the best alternative for new businesses during their first phases of life (Hoyos 2013). Apart from the first funding sources on which business rely (equity and 3Fs), the support which they are able to receive from Business Angels and through crowdfunding is a solution enabling them to turn their projects into a reality.

According to Colomer and Espinet (2009, p. 43) a Business Angel can be defined as "…a solvent individual (whether it be a businessman, company executive, saver or a successful entrepreneur) who from a financial point of view, privately contributes "intelligent capital", or in other words, its capital, its technical know-how and its network of personal contacts".

On the other hand, crowdfunding is a collective financing or mass financing movement offering the possibility of a direct connection between the supply of and demand for credit, from person to person, generally through an internet platform. According to Rivera (2012) this form of collective financing involves the start-up of projects through financial contributions from a group of people; the size of this group being as large as required by the project and as large as permitted under the laws in force in the country where it is undertaken.

According to data taken form the Universo Crowdfunding platform (2014), it is estimated that in April 2012, 452 crowdfunding platforms existed worldwide, and this number had increased to 536 by the end of that year. Now there are nearly 600 Crowdfunding platforms, and of the total of the 67 active Crowdfunding platforms in Spain and Latin America. Spain is the spanish speaking country with the greatest number, i.e. 53, followed by Colombia, Argentina and Mexico. It is estimated that in 2013 the volume of financing generated through these platforms reached 5,100 million dollars, of which 1,700 million was generated in Europe; this was double the 2,860 million dollars of revenue generated in 2012.

Most experts in this field differentiate between four different types of collective financing through crowdfunding (Gutiérrez 2014):

1. Reward based crowdfunding: It is characterised by the exchange or advanced sale of services and products. The funder or backer finances the project with a small amount of funds and then waits to receive predetermined compensation, for example in the case of a film project, tickets for the premiere of the movie.
2. Equity based crowdfunding: In this case, as consideration for his contribution, the investor receives a share or stake in the business or is promised a portion of the profit earned.
3. Lending based crowdfunding: The investor earns interest on the contributions made to the project; following which the one who receives the money is obliged to return the quantity received in addition to the interest agreed.
4. Donation based crowdfunding: This is characteristic of charity or humanitarian projects; and in this case there is no consideration for the people that finance the project by donating funds.

At present, the future of crowdfunding in Spain is quite uncertain; considering that as part of the Spanish business financing law, the government has presented a draft law (28 February of 2014) for the purpose of regulating collective financing, and above all, equity crowdfunding. The new regulations provide enhanced legal guarantees for this type of financing, but also set limits on the amount contributed by investors for each project (3,000 euros) and platform (6,000 euros).

9.3 The Role of the Business Angels in the New Businesses

The figure of Business Angels is not new and dates back to the beginning of the twentieth century, at which time businessmen backed theatrical Broadway productions. It also featured prominently in the development of successful businesses such as Hewlett Packard in Silicon Valley, California in the United States. The United States is currently the main source of funding for innovative businesses, playing a fundamental role in the support of entrepreneurs during the initial phases of the life cycle of its projects. However, in Europe, it is estimated that the size of the Business Angels' market in recent years is ten times smaller than in the United States (AEBAN 2014).

Spain is the top country in Europe in terms of the number of Business Angels networks inside the EBAN (The European Trade Association for Business Angels), accounting for 14 % of the total existing networks, in contrast to other countries who have been carrying out this type of investments for a longer period of time, such as the United Kingdom, which accounts for 11 %, or France and Germany, which account for 6 % and 5 %, respectively. In Spain, the Spanish Association of Business Angels was created in November 2008, and is tied to its European namesake. In 2013 this network offered backing to a total of 27 Business Angels networks and 1,300 investors with main headquarters in 10 different autonomous regions in Spain; mobilizing resources amounting to 20 million euros. The networks are a meeting point for investors and entrepreneurs, catalyzing the supply and demand of capital (Sánchez Solé and Casanueva 2009; VV.AA. 2010a).

The Business Angels are individuals with extensive knowledge of certain industries and with investment capacity, who are driving forces behind the development of business projects in their first stages of life, both during their creation seed capital and start-up (Aris Coderch et al. 2009). In addition to capital, they also contribute added value to management in the form of know-how, confidence and networks of personal and business contacts; which has come to be known as smart capital or "4C". Figure 9.3 shows the main characteristics of this investment agent.

The profile of the Business Angels is difficult to characterize, being quite a heterogeneous group. Nevertheless, they do share some common characteristics which differentiate them from other types of investors. The most important characteristics include, inter alia, the following (Colomer and Espinet 2009; Casanovas Ramón 2011; AEBAN 2014; VV.AA. 2010b):

Fig. 9.3 Characteristics of business angels (Source: IPYME and compiled by author)

Confidence

Capital contribution

Private investor or Business Angels

Know-how

Network of Contacts
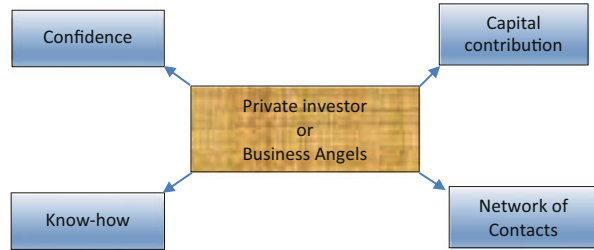
- They are mainly men who are between 35 and 65 years old, with prior success as businessman or executives and higher degrees. They are dynamic people with a desire to begin projects and to transfer their know-how and abilities to young people committed to starting up a new business project.
- Their investment decisions are not usually based on feasibility studies which are as extensive and detailed as those used by other investors such as venture capital. Their involvement in the management of the business depends on their reasons for investing. In this respect, it is possible to find Business Angels with a high degree of involvement (Company Business Angels), others with a desire to work and to contribute constant added value in the business in which they carried out the investment (Employee Business Angels), and others who wish to transmit their know-how to entrepreneurs who are starting up a business project (Consultant Business Angels).
- The investment they make comes from their private funds and can range 25,000–300,000 euros. They do not usually acquire a stake of more than 50 % in the business in which they invest; and they prefer to invest in innovative projects, with quick growth perspectives, headed by a committed team (economically and in terms of labour and passion) which is also stable. On the other hand, they tend to invest in businesses which are not far from where they reside (a maximum of around 100 km from their residence).
- If the investment volume required for the project is above their possibilities they usually syndicate; although in these cases there is normally a main Business Angel who heads the operation and contributes more capital.
- Their investment is made in the initial business development stages, either during the business project start-up or development stages, or otherwise, in the first stages of business growth.
- The profit they earn tends to be lower than that earned by venture capital companies, since they tend to invest for personal reasons. Divestment usually occurs after 3–7 years.

Even though the number of Business Angels networks in Spain is higher than in other European countries such as those previously mentioned, the Business Angel market continues to be incipient. Therefore, it is necessary to attract new investors and encourage them to support new businesses. Mason (2009) describes three phases of government support required for their encouragement: fiscal support in the first stage, followed by a second stage of network support, which provides them

with more prominence and a third stage of expansion of structures and of joint investments among groups of Business Angels, with an increase in investment amounts.

Progress has been made in relation to the first phase (income tax incentives for Business Angels) in Spain, through Law 11/2013 to Support Entrepreneurs. Under Article 26 of this law, different income tax advantages are given to investors who decide to contribute capital to newly created companies. Nevertheless, these incentives are smaller than those provided in countries such as the United Kingdom.

On the other hand, there is an increased professionalism of the investor which results in investments being made with the appropriate knowledge. At this time, according to Pedro Bisbal (Director of CVBan- Association of Business Angels of the Valencian Community) the Business Angels lose money in 60 % of 100 investments in start-ups made. In another 25 % of the cases, they barely recover their investment, and only in the remainder of the cases do they actually receive a large return on the investment, which compensates for the remainder of the projects CvBAN (2014). Nevertheless, according to the available data, the businesses in which the Business Angels invest have a greater percentage of success; which is only logical keeping in mind not only that the investors are very selective about which projects to invest in, but also that they contribute funds, experience and contacts to the projects.

9.4 Cases of New Projects Carried Out with the Support of Business Angels

As explained in the previous section, successful businesses have arisen due to the support obtained from Business Angels, as is the case of the previously mentioned Hewlett Packard or other companies such as The Body Shop, Amazon, Skype, Starbucks or Google. In Spain there are increasingly more businesses created with the support of Business Angels. In this section, three examples of these projects are shown which are representative of the profiles of businesses that are currently opting for this means of support and financing. Through the analysis of these cases, the main aspects defining them will be described.

The three cases analysed are as follows: PLD Space (aerospace industry), Gopango networks (applications for mobile devices) and Clay Kids (audiovisual animation industry).

9.4.1 PLD Space

The idea for this project was born at the hands of three entrepreneurs: Raúl Torres, Raúl Verdú and Jose Enrique Martínez, who aimed to develop a rocket capable of sending small satellites and scientific experiments to space.

The business was founded at the end of 2011, and throughout 2012 it developed an ambitious business plan in order to identify market needs and analyse the feasibility of designing a rocket to cover the current gap in the market for the launching of small satellites of up to 100 kg in weight. The first satellite in orbit weighed from 5 to 10 t and required large propellants. The NASA, and the European, Russian and Chinese space agencies vied for the aforementioned market, but the market for satellites from 1 to 100 kg was more open, and there were increasingly more private enterprises interested in their development.

In June 2013, after the project was approved by the CDTI (Centre for Industrial and Technological Development) and the European Space Agency, the one million euros required for the initial investment in the project was obtained from different investors – Business Angels-, IVF (Valencian Institute of Finances), Caixa Capital Risc and CDTI which are committed to backing innovative ideas.

The developer's idea relied on a business model based on technological synergy with other Spanish businesses, as well as the re-use and scalability to design, building and launching of a rocket that will measure 13 m long and 0.65 diameters and will weigh almost 2 t at takeoff. The first release will be able to transport 200 kg of scientific experiments on a suborbital flight path, and will be able to be modified in order to put small satellites of up to 100 kg into orbit.

The business anticipates having the product ready for placement on the market at the beginning of 2017.

9.4.2 Gopango Networks S.L.

This is a Valencian technological company which first specialised in the development and marketing of mobile applications and games. It was created by two entrepreneurs: David Giner and Juanjo LLull in June 2011, who identified a market opportunity based on their university studies.

Gopango Networks was born with the aim to create iOS and Android games. Later they had to diversify and expand their products to include applications for businesses, and now their main line of business is the promotion of mobile applications for other mobiles made by other companies. The change in business activity was mainly due to the identification of new market opportunities, taking into consideration that mobile game players have numerous purchase options, but they lack adequate information to identify the most interesting applications for cover their needs. Gopango offers the user the possibility to learn about these applications and recommends those that adapt better to their demands.

The staff of Gopango has not stopped growing in recent years. There are currently 20 employees and the company foresees hiring new employees in order to cover their projected expansion needs.

For the purpose of developing their star product (Stelapps), in the summer of 2013 they obtained an injection of capital amounting to 600,000 euros from private investors –Business Angels- and the Valencian Institute of Finances. They are

currently present in the German, British, and Spanish market; and they are in the process of obtaining financing which will enable them to expand to the Asian, European, and Latin-American markets..

9.4.3   Clay Kids

The project was created by the Valencian Javier Tostado to launch a cartoon series "Clay Kids," which caricatures new technologies through the everyday stories of a group of adolescents. The characters are dolls which are made of articulated steel structures covered with latex foam, silicone hands and a resin head.

They currently have a multidisciplinary team of more than 80 people, and the support of the ICAA, ICEX, IVF and CvBAN. The series, which is coproduced by TVE is now broadcast in several countries such as the United States, Mexico, Israel and Finland.

The project, whose budget is 2.5 million euros, obtained an investment of 800,000 euros from the Spanish Association of Business Angels, with a total of 16 investors. The investors valued the fact that this is a product with a very good return on the investment, given that we are currently in the golden age of audiovisual productions.

The production of this series has led the company to have greater visibility, enabling it to launch diverse products related to the series, and thus refuel the dissemination of their series and in turn create additional profit.

9.5   Conclusions

In recent years there has been a severe retraction of credit by banks; which are currently the main source of funding for new business projects in Spain, in addition to the traditional 3Fs (Family, Friends and Fools). This situation has been seen aggravated by the demands of the banks with respect to guarantees above all in new projects with high rates of risk, which has led to an increase in the access and use of stock market financing sources.

Among the different market alternative for financing new business projects, we have identified the Business Angels and crowdfunding as being the most appropriate. Nevertheless, the latter option is still in the development phase in our country and is subject to regulatory uncertainty.

Therefore, the Business Angels are considered to be the best alternative for the support and financing of new innovative business projects, since they are a driving force behind projects in their first phases of life, both during their creation (seed capital) and their development (start-up). In addition to capital, Business Angels contribute added value to the management of the project in the form of know-how,

confidence and networks of personal and business contact, reducing the risk and increasing the possibilities of consolidating the project.

It is important to emphasize that the Business Angels prefer to invest in innovative projects with quick growth perspectives, which are headed by a young and committed team. In the event of high project financing needs, the projects are typically syndicated; although in these cases there is normally a main Business Angel who heads the operation and contributes more capital.

In the successful cases describes above, three profiles of businesses in which Business Angels tend to invest were shown: businesses of a technological and industrial character with new market niches.

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Chapter 10
Serial Entrepreneurship, Organisational Capital and Access to Venture Capital

Jean Rédis and Jean-Michel Sahut

Abstract The following chapter explores the potential differences in access to venture capital between serial entrepreneurs (who have founded several businesses, either one after the other or simultaneously) and new entrepreneurs (who launch a business for the first time). While empirical results differ regarding the outperformance of serial entrepreneurs compared to that of new entrepreneurs, numerous examples seem to suggest that serial entrepreneurs have easier access to venture capital. We can explain this paradox by drawing on organisational theory. Entrepreneurial experience, which could be considered as a form of entrepreneurial training, gives the serial entrepreneur an advantage since he or she has both more human capital (experience) and social capital (network) than a new entrepreneur, advantages that are liable to give the entrepreneur easier access to venture capital. Empirical studies indicate that experienced entrepreneurs tend to have faster access to funds, and receive larger sums than new entrepreneurs. However, studies are less conclusive when we investigate the higher valuation of serial entrepreneurs' businesses compared to that of new entrepreneurs.

Venture capital (VC) is a key source of funding for new businesses, especially firms based on the immaterial or intellectual property (Hsu 2007). The figures show that successful access to venture capital financing is very low, around 3–5 % (Shane and Stuart 2002). Yet, in a context of capital rationing, some entrepreneurs seem to find it easier to finance their new venture than others. These are "serial entrepreneurs," in other words, entrepreneurs who have already launched one or more businesses in the past. Examples include entrepreneurs such as the American Jim Clark, the Dane Janus Friis and his Swedish partner Niklas Zennström, or French entrepreneur Marc Simoncini, who all have multiple business ventures under their belt, on each occasion managing to raise funds through venture capital. These observations raise certain issues, especially since the potential outperformance of businesses launched by serial entrepreneurs compared to other firms has not been clearly proven, and findings from studies conducted in this area are generally inconclusive (Gompers et al. 2006).

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This gives rise to a two questions. Without empirical proof to determine which of the two cases achieves better operational performance, why do serial entrepreneurs benefit from easier access to capital venture financing? Aside from the anecdotal examples above, has such privileged access to venture capital been confirmed by empirical studies based on statistically relevant samples?

This paper attempts to answer the following questions: first, are there any elements in entrepreneurial theory that can explain the apparent advantages of serial entrepreneurs when seeking access to venture capital? Secondly, can this assumed advantage be confirmed by entrepreneurial practice?

The question is of interest for a number of theoretical and practical reasons. At theoretical level, putting the issue of how serial entrepreneurs obtain seed capital into perspective requires an understanding of the way investors manage the selection process of funding applications, as well as an analysis of entrepreneurial characteristics and the impact of the latter on their potential to acquire funding. From a practical standpoint, the question of serial entrepreneurs' potentially easier access to venture capital has thrown up some major issues, insofar as nascent businesses that seek this type of funding mostly belong to sectors where swift development is a key asset.

Our paper is organised as follows. We explore the theoretical reasons that underlie why serial entrepreneurs may be able to access venture capital more easily than others. The awarding of venture capital takes place within a context of information asymmetry. To counteract this problem, contractual solutions can be brought into play, but the relation of trust between investor and entrepreneur is also likely to be important. In this regard, previous entrepreneurial experience, likened to entrepreneurial learning, provides a means to increase the entrepreneur's human and social capital, giving the serial entrepreneur an advantage when it comes to raising capital. Finally, we examine the findings of empirical studies conducted to determine whether serial entrepreneurs benefit from preferential access to venture capital. We successively consider the possible differences in the way they are treated, depending on whether the company was founded by a serial entrepreneur or not, how quickly the funds are raised, the amounts awarded, and the valuations obtained.

10.1 Factors that Might Explain Why Serial Entrepreneurs Have Easier Access to Venture Capital than Others

In order to explain the aforementioned paradox (habitual entrepreneurs benefitting from easier access to venture capital financing compared to novice entrepreneurs, despite the apparently relative lack of difference in performance levels), we begin by examining the fundamental workings behind investors' decision-making. In this regard, we should keep in mind that the business venture selection process

undertaken by venture capitalists fits into a context of information asymmetry. To address this problem, which we look at in more detail later on, players might consider contractual solutions (agreeing on an investment contract, gradual investment...), or rely on the relationship of trust between investor and entrepreneur. The latter approach might indeed work in favour of serial entrepreneurs. In effect, serial entrepreneurship, which can be likened to a form of entrepreneurial learning, offers serial entrepreneurs additional human and social capital that will presumably help them in their search for funding.

10.1.1   The Decision-Making Process in VC Investment

To better understand the advantages that serial entrepreneurs may have when it comes to financing their business venture, we first need to look at the fund-raising process and what is at stake for investors. To this end, we begin by examining the issue of information asymmetry between investors and entrepreneurs, before exploring the possible solutions, those of a contractual nature and those that rely on the trust established between the different parties.

10.1.1.1   The Fundamental Challenge of Information Asymmetry

The difficulties inherent in securing access to financial capital that entrepreneurs come up against are well known (Evans and Leighton 1989), particularly for fledging technology-oriented businesses that rely heavily on intellectual property and require significant funds to ensure the launch of a product or service (Hsu 2007). The selection process adopted by venture capitalists has been central to many studies. Shepherd and Zacharakis (1999) conducted a critical review of these studies, highlighting the importance that investors lend to the abilities of the founding team, be it their managerial skills, previous start-up experience (Hutt and Thomas 1985), their market expertise (MacMillan et al. 1986), or more general entrepreneurial features (Hisrich and Jankowitz 1990). Investors naturally tend to prefer entrepreneurs who appear to have a wider range of skills. Although these studies mainly attempted to identify the discriminatory criteria that explain what differentiates entrepreneurs who succeed in securing funds and those who fail, the VC investment process does not end there. In reality, it comprises a series of decisions; venture capitalists not only have to select the entrepreneurs and the projects they will support, but also the moment when the initial investment will go through, the timetable for future investor meetings, and the amounts to invest on each occasion (Hsu 2007).

At the heart of this series of investment decisions by venture capitalists is a problem of information asymmetry between the entrepreneur and the investors (Leland and Pyle 1977; Amit et al 1990; Shane and Cable 2002). The underlying problem is that although venture capitalists wish to make decisions based on the

entrepreneur's qualities, and even though they employ all available methods to gather the relevant information during the selection process, it is simply impossible to know more about the entrepreneur than the latter knows about him or herself. This problem of information asymmetry extends not only to the individuals and/or the projects selected, but will also dictate the timing of their investments and the amount of money they provide.

One way to resolve this information asymmetry issue is to adopt a contractual solution.

10.1.1.2   A Contractual Approach as a First Solution

The entrepreneurial finance literature puts forward various types of solution of a contractual nature to remedy the problem of information asymmetry, notably, defining a finance agreement, the type of securities involved, and the traunch out of capital over time (Gompers and Lerner 2000; Kaplan and Strömberg 2004; Shane and Cable 2002). The finance agreement is first drawn up with this in mind. Investors usually include specific clauses to protect themselves against potential future opportunistic behaviour by the founder. In particular, voting rights, access to financial flows and other rights are often contingent upon performance (both financial and non-financial). Venture capitalists may be able to assume total control of the company if the latter does not deliver the expected results. Investment contracts generally include clauses that share the risks between entrepreneurs and investors. Kaplan and Strömberg (2004) empirically demonstrated that the characteristics of venture capital agreements matched the suggested theories.

On the other hand, the choice of funding tools used also attempts to provide a solution to the information asymmetry conundrum. Thus, within a context of information asymmetry, preferred equity financing is a better option than debt financing: Trester (1998) argued that convertible preferred equity is prevalent in the first stages of development (when information asymmetry is very high), while debt financing is employed during later stages of development (when the information asymmetry is lower). Many studies have also sought to explain the use of convertible financing. Cornelli and Yosha (1997) found that this type of financing provided the investor with the means to protect themselves against potential opportunistic behaviour by the entrepreneur.

Finally, the widespread practice of gradual investment over time or the "traunch out" of capital is also designed to counter the problem of information asymmetry (Gompers and Lerner 2000). Most investors prefer to make gradual investment decisions: initially, they provide only a small amount to a business, conditioning their subsequent investment decisions on the company's future performance. In this way, venture capitalists can assess the entrepreneur's ability and the viability of the business plan over time. They also reserve the right to terminate investment should certain performance targets not be reached.

However, in addition to contractual solutions, a further solution to information asymmetry is one based upon trust.

10.1.1.3   An Alternative Approach Based Upon Trust

Another way to deal with the problem of information asymmetry is based on the entrepreneur's social integration (Shane and Cable 2002), a concept initially developed in economic sociology. The main idea is that economic decisions, including venture capital, are not made in isolation, but are, on the contrary, embedded in a social environment. The entrepreneurs' interpersonal relationships can have an impact on acquiring funding, the speed with which a business founder can get the necessary funds, and the amounts they are able to raise. Shared social relations enable investors and entrepreneurs to exchange information. Should an entrepreneur do anything that might adversely affect the venture capitalist's financial interests, the former would have to take into account the possibility of losing the trust of many other people in the same social network. Consequently, these mutual social ties can be a key factor in bolstering investors' confidence in the entrepreneur (Wiklund and Shepherd 2008).

To better understand the presumed advantages of habitual entrepreneurs when acquiring venture capital from this perspective, we also need to analyse the importance of the entrepreneur's organisational capital.

10.1.2   The Impact of the Entrepreneur's Organisational Capital

From a process-oriented perspective, entrepreneurship consists of discovering business opportunities and exploiting them (Shane and Venkataraman 2000). In order to exploit an opportunity once it has been discovered, an entrepreneur must have the resources needed to exploit it and find a way to organise these resources so as to extract value from the opportunity. This implies having access to such resources in order to generate the returns associated with a market opportunity, and doing so in a way that allows the economic stakeholders to reap at least part of the potential returns (Alvarez and Barney 2004). Among the resources available to the entrepreneur are human capital and social capital. The notion of entrepreneurship as a process fits into a behaviourist or behavioural approach (Gartner 1988). From this perspective, entrepreneurship is seen as a constantly evolving process, excluding stable behaviour by an entrepreneur over time. From this perspective, we can consider entrepreneurship as a dynamic learning curve, whereby individuals continually acquire the skills and knowledge needed to succeed in an entrepreneurial venture (Cope 2005). First, we will examine how entrepreneurial experience constitutes a building block in entrepreneurial learning and we will then analyse the way in which entrepreneurial experience can increase a founder's human and social capital, while providing them with additional advantages in their search for funding.

10.1.2.1 Habitual Entrepreneurship: An Entrepreneurial Learning Building Block

According to Minniti and Bygrave (2001), entrepreneurial learning is an ongoing and cumulative process in the sense that what is learnt at any one point in time builds on what has already been learnt in the past. Thus, each individual enters the entrepreneurial process equipped with a subjective "knowledge stock" conditioned by their prior knowledge. Harvey and Evans (1995) put forward the concept of "*degree of entrepreneurial preparation*" that encompasses the skills and abilities the entrepreneur can contribute to the entrepreneurial process, and shapes the way they perceive and experience learning throughout the entrepreneurial process (Cope 2005). The knowledge acquired from previous experiences will therefore be self-reinforcing, allowing the learning process to be regenerated in accordance with the acquisition of new knowledge. Politis (2005) argued that the kind of prior experience also conditions the type of entrepreneurial skills developed, consequently influencing the degree of preparation for entrepreneurship. Politis identified three types of professional experience that can be translated into knowledge for identifying and exploiting opportunities: prior start-up experience, managerial experience and industry-specific experience. Managerial experience helps to develop the entrepreneurial skills required to deal with unfamiliar challenges such as being able to negotiate or make decisions, organisation and communication skills, etc. Industry-specific experience can help to reduce the uncertainties attached to a project, the market and the technology. Finally, start-up experience is acknowledged as a way of acquiring tacit knowledge, and a facilitator that makes it easier to take decisions in a pressure-filled context of uncertainty, while managerial experience facilitates access to priority information that can serve to identify new business venture opportunities. Consequently, the kind of experience an entrepreneur has before embarking on a start-up process will influence the set of skills and abilities that form his or her knowledge stock. We will now analyse the way in which entrepreneurial experience can serve to expand the entrepreneur's human and social capital and thus improve their prospects with regard to raising capital.

10.1.2.2 Improving the Entrepreneur's Human Capital

The human capital theory posits that individuals who dispose of more human capital or human capital of higher quality achieve better performance in the execution of certain tasks (Becker 1975). From an entrepreneurial point of view, human capital comprises the knowledge and skill sets that enable a person to successfully engage in the creation of new activities or enterprises (Davidsson and Honig 2003; Snell and Dean 1992). Human capital includes both general and specific capital.

General human capital encompasses knowledge, skills and the ability to solve problems that are transferable to different situations. General human capital is

traditionally associated with education. In an entrepreneurial setting, general human capital is valuable because it facilitates the integration and accumulation of new knowledge, providing entrepreneurs with a wide range of opportunities that help them to adapt to new situations (Gimeno et al. 1997).

While general human capital can be generalised across all contexts, specific human capital cannot. In an entrepreneurial context, specific human capital refers to the education, training and experience that are valuable to entrepreneurial activities but have few applications outside of this domain (Becker 1975; Gimeno et al. 1997). In the entrepreneurship literature, the most frequently investigated aspect of specific human capital is previous start-up experience (Florin et al. 2003). The prior experience of serial entrepreneurs gives them expertise in running a business (Wright et al. 1997) as well as benchmarks for judging the relevance of information, providing them with a better understanding of the real value of opportunities for new start-up projects, speeding up the business creation process and enhancing performance (Davidsson and Honig 2003).

10.1.2.3 The Entrepreneur's Extended Social Capital

Economic behaviour, including entrepreneurial activity, hinges on a network of interpersonal relations which form the basis of an individual's social capital (Coleman 1988). These networks are defined by a set of actors (individuals and organisations) and the various bonds between them (Hoang and Antoncic 2003). According to Lin et al. (1981), social capital can be considered as a resource tied to a relational network. Social networks are represented by family, the community and organisational relations. The theory of social capital concerns the ability of actors to extract resources from their social networks (Lin et al. 1981).

From an entrepreneurial perspective, social capital refers to all the interpersonal and inter-organisational relations through which entrepreneurs have access to a variety of resources needed for the discovery and exploitation of business opportunities and the success of the enterprise (Davidsson and Honig 2003; Wiklund and Shepherd 2008). Social capital is generally represented by the type of relationships among networks, the strength of ties, the frequency of meetings, and family and social relations. The relational network represents possible ties at a personal or organisational level. These ties can be direct or indirect and of varying intensity. In this context, friendship and trust are particularly significant in facilitating the transfer of information and knowledge that are hard to procure by other means (Wiklund and Shepherd 2008). They create opportunities for the exchange of goods and services that are difficult to obtain contractually. In particular, business owners use their contacts to obtain access to resources and facilitate the start-up creation process (Wiklund and Shepherd 2008).

The role of social capital in awarding resources to a fledgling business has also been explicitly demonstrated. Fried and Hisrich (1994) showed that, since investors receive so many business-plan applications for funding, social connections play a significant role in determining which ones will receive capital. These findings

illustrate a process whereby investors tend to finance entrepreneurs they have heard about, either from owners of other companies that are already in their portfolio, or from their fellow investors, close friends or family. Based on a study of 202 venture capitalists in the priming phase, Shane and Cable (2002) observed that direct and indirect links between entrepreneurs and investors have an impact on the selection of projects financed. Shane and Stuart (2002) also noted that entrepreneurs with social capital (consisting of pre-existing direct or indirect links with venture capital investors) have a higher probability of receiving funding in the first stages of the business.

Entrepreneurial experience is thus expected to increase both the human and the social capital of an entrepreneur, within a framework of entrepreneurial learning. We will now examine the assets that serial entrepreneurs are assumed to dispose of when accessing venture capital.

10.1.3 Presumed Advantages of Habitual Entrepreneurs in Raising Capital

Given the characteristics of the venture capital investment process, we may reasonably suppose that more experienced business founders have an advantage over novice entrepreneurs. Prior start-up experience can help entrepreneurs to build ties with venture capitalists, facilitating the acquisition of funding while at the same time helping them to obtain a better valuation.

10.1.3.1 The Advantages of Serial Entrepreneurs When Acquiring Funding

According to Hsu (2007), social capital should be regarded as a resource which can be increased or decreased depending on the actions or decisions of individuals. Considered as a system of relations between individuals, social capital can incessantly increase or decrease. Prior start-up experience gives entrepreneurs an opportunity to meet a wide range of people, including financiers (such as bankers, venture capitalists and business angels), professionals (accountants, consultants, lawyers and human resource specialists), service providers and clients. The affiliations established with these people during previous start-up experiences increases the entrepreneur's stock of social capital. Some of these connections, even if they stem from weak or indirect links, can prove useful in the future should the entrepreneur start a new business venture.

In particular, entrepreneurs who have previously opened a firm financed through capital venture have stronger ties with investors, given that venture capital investment is generally characterised by social interaction within geographically defined areas (Sorenson and Stuart 2001). This social interaction, which includes

entrepreneurial clubs, events and specialised media, can serve to relay information about the existence and the quality of an entrepreneur to investors. Consequently, entrepreneurs with previous experience in business start-ups are very likely to have more human and social capital, giving them an advantage over novice entrepreneurs during the resource acquisition process. Furthermore, the import of organisational capital for new businesses attempting to obtain venture capital funding can be subordinated to the success of the founder's prior start-up experience. Entrepreneurs with a successful start-up experience are likely to send out a stronger message regarding their entrepreneurial qualities (Spence 1974).

10.1.3.2 The Advantages of Habitual Entrepreneurs in Business Valuation

Habitual entrepreneurs are also assumed to benefit from advantages in the valuation of their business.

Better Financial Negotiation Experience

Entrepreneurs with previous experience in business start-ups are believed to have a better negotiation position regarding the valuation of the company, since they are likely to have learned more from their previous experience. Novice entrepreneurs on the other hand may not be as skilled at negotiating with investors, especially with regard to the company's valuation, since they are unfamiliar with the negotiation process. This asymmetry of power is further exacerbated during the negotiations pertaining to the valuation of new companies on account of the uncertainty regarding the probable performance of the entrepreneurial team in the current venture. Moreover, a habitual entrepreneur who has experienced success may often have the means to wait until offered more favourable valuation conditions (Hsu 2007).

A Signalling Effect

In addition, a successful prior experience also signals to venture capitalists that a habitual and successful entrepreneur is more likely to have good entrepreneurial skills. Previous success also suggests that the founder disposes of useful contacts among his or her social network –loyal customers or service providers– who will promote the new company's success. Experienced entrepreneurs can then receive higher valuations on account of the reduced risk of failure from the investors' perspective, especially when such seasoned entrepreneurs are more inclined to protect their specific entrepreneurial reputation.

Reduced "Inter-Organisational Brokerage Commission"

Beside the purely financial contribution, venture capital investors may also provide inter-organisational brokerage services. In effect, the venture capitalists' activity enables them to develop information and social networks through the companies already in their portfolio (Sorenson and Stuart 2001; Hochberg et al. 2007). These networks may be particularly well developed in business sectors in which they have significant investing experience (Hsu 2004). Venture capitalists can ensure that the start-ups they invest in benefit from various services: executive recruiting, identifying further sources of funding and promising strategic partners, etc. (see Bygrave and Timmons 1992; Hellmann and Puri 2002). Actors who broker information and resources between parties may earn a "commission," which may be deducted by investors in the form of a reduction in valuation in the case of entrepreneurs most in need of this type of service.

Serial entrepreneurs are likely to have already established social ties with the employment and financial markets, as well as with potential strategic partners, thereby reducing their dependency on venture capitalists who may otherwise "broker" these ties. In contrast, novice entrepreneurs, generally with fewer established links, may find themselves liable for brokerage fees in the form of lower valuations of their start-ups and will need venture capitalists to help bridge the "structural holes" (Burt 1992) to access markets and partners. This means that firms founded by habitual entrepreneurs often receive a higher valuation than start-ups created by fledgling entrepreneurs.

We will now examine the empirical findings to determine whether or not serial entrepreneurs really benefit from more privileged access to venture capital.

10.2 Empirical Findings: Habitual Entrepreneurs Have Easier Access to Finance

Below, we consider the possible differences in treatment, depending on whether the businesses were launched by a habitual entrepreneur or not, how quickly the funds were raised, the amounts raised and the valuation levels obtained.

10.2.1 Faster Access to Venture Capital Funding

Relatively fast access to capital funding is extremely important for the companies studied. Indeed, venture-backed firms tend to be concentrated in high-tech industries in which the fast pace of innovation gives first comers a major advantage. Gompers et al. (2006) found significant differences in the access-to-finance timeframe, depending on whether the entrepreneurs were novice or serial. On

average, serial entrepreneurs receive venture capital funding at an earlier stage of their company's development. Gompers et al. (2006) studied venture-capital backed firms during the first round of financing and the percentage of companies in the so-called "early" stage, depending on whether the companies were launched by serial or novice entrepreneurs. While 45 % of first-time founders receive funding during a first round of financing at this "early" stage, the rate is 60 % for entrepreneurs starting a second (or umpteenth) company. Moreover, "subsequent" ventures launched by serial entrepreneurs also receive first-round financing funds when their companies are younger: i.e., 21 months old on average, against 37 months for novice entrepreneurs.

These findings were confirmed by Zhang (2011) in a study on 5,972 entrepreneurs. The time before the first round of financing was shorter by 9.5 months on average for entrepreneurs with a prior venture-backed business. Overall, novice entrepreneurs had to wait 19.5 months before the first round of venture capital took place, against 19.2 months for entrepreneurs with previous start-up experience but without venture capital financing, while the average timeframe for start-ups by entrepreneurs with a previous venture-capital backed company was only 9 months.

10.2.2 More Venture Capital Awarded

Zhang's findings (2011) indicate that companies started by founders with previous experience in venture-capital backed business start-ups receive $4.1 million more on average during the first round of VC financing compared to companies started by novice entrepreneurs. This gap is substantial given that the total amount of money raised in the first round is $7.47 million on average. In contrast, entrepreneurs with previous business start-up experience but without venture capital financing do not raise more money than the average. This suggests that entrepreneurs with prior VC-backed start-up experience raise more capital at an earlier financing stage. According to Zhang, this advantage stems from previously established social ties with venture capitalists rather than better entrepreneurial skills. Along with the previously mentioned swifter access to venture capital, Zhang argues that entrepreneurs with previous start-up experience supported by venture capital have a head start in the investor-backed fundraising process, whilst entrepreneurs with prior start-up experience not involving venture capital funding have no advantage in the very early stage of financing.

Examining all the rounds of financing conducted, Zhang (2011) shows that serial entrepreneurs who have previously secured venture capital raise around $3.7 million more per round of financing than novice entrepreneurs. This difference is smaller, however, than that observed for just the first round of financing, which suggests that the advantage of entrepreneurs who have previously requested venture capital funding diminishes over time. On the other hand, serial entrepreneurs who have not requested venture capital for their previous venture nonetheless raise $0.8 million more than novice entrepreneurs per round of financing, suggesting that

although venture capitalists do not favour habitual entrepreneurs with previous start-up creation experience, but no venture capital financing, in the first round of financing, this category of entrepreneurs learn a great deal from the experience. Their acquired skills and knowledge are subsequently recognised by venture capitalists and help such experienced entrepreneurs to raise more VC funds in later rounds of financing.

Taking into account the total sum of funding granted per company, the overall amount raised by serial entrepreneurs with previous VC-backed experience is $5.7 million above the average, against a gap of $4.1 million if we just take the first round of financing. The difference appears to narrow in later rounds of financing. This makes sense since, over time, all entrepreneurs, including those without previously established links with VC investors, gradually iron out the problem of asymmetric information. Thus, entrepreneurs without prior venture-backed experience are less disadvantaged in later rounds of financing.

Interestingly, Zhang's findings seem to indicate that the relative importance of skills and established ties vary according to the stage of venture capital financing. At a very early stage, the entrepreneur's connections to the venture capital community (social capital) appear to play a larger role. During subsequent rounds of financing however, the strengthening of entrepreneurial skills (human capital) has a bigger impact.

10.2.3   Differences in the Valuation of Companies

Start-up valuation is a key issue for entrepreneurs and investors alike (Hsu 2007). However, to date, empirical research is inconclusive in this regard. According to Hsu (2007), prior start-up experience is positively associated with business valuation by venture capitalists. This suggests that measures of human capital are linked to the development of social capital (Coleman 1988) and that a firm's valuation increases in line with the founders' human capital (which is consistent with the literature on human and organisational capital). This finding also appears to favour the organisational resources of a new venture being conceptualised in the form of investments (increasing over time) rather than endowments that are fixed from the outset.

However, Gompers et al. (2006) reach quite different conclusions. The authors studied the influence of serial entrepreneurship on a company's valuation. To get a better grasp of the situation, the methodology consisted of using the first round of "pre-money" valuation as a valuation yardstick. The "pre-money" valuation also equals the price paid per share at the moment of the financing round and the number of outstanding shares preceding the investment round (calculations from Venture Source). Given that previously successful serial entrepreneurs show higher success rates for their current ventures, we might expect that these companies would also benefit from higher valuations. Yet the results do not show that serial entrepreneurs (whether their previous company was successful or not) are able to benefit from

their better success rate by selling shares at higher prices, a fact that suggests that venture capital firms are able to purchase such shares "on the cheap." This paradoxical conclusion is nonetheless consistent with the findings of Kaplan and Stromberg (2004), who studied the contractual provisions of VC financing contracts and found that serial entrepreneurs who receive more favourable terms than novice entrepreneurs, especially the number of seats on the Management Board, liquidation rights and the gradual investment terms, did not receive a higher valuation for their company (measured in terms of capital allocation). Presumably this is because their higher success rates make it less important for venture capitalists to protect themselves with tighter control provisions. Gompers et al. (2006) thus concluded that serial investors might extract greater value from non-financial venture capital investment rather than from their business's financial valuation.

10.3   Conclusion

The contribution of this chapter can be appreciated on two levels. First, on a theoretical level, exploring the fields of entrepreneurial learning and organisational capital helped us to understand why habitual entrepreneurs are more likely to have an advantage in raising funds. In view of the inherent information asymmetry in the entrepreneur/investor relationship, entrepreneurial experience is seen as a component of entrepreneurial learning and habitual entrepreneurs are consequently expected to have more organisational capital (in terms of both human and social capital) than novice entrepreneurs.

The study then showed that the expected advantages of serial entrepreneurs with regard to raising capital are widely confirmed by existing empirical studies, whether in terms of ease of access to capital or the amounts raised. On the other hand, findings pertaining to an advantage in terms of company valuation are more debateable.

The limitations of our contribution result notably from the lack of empirical research on this subject in a French-speaking context. We can only hope that the research community in entrepreneurial finance will follow up the topic in order to further our understanding of the start-up financing process and the role of venture capital as a driver for value creation.

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Chapter 11
Nations of Entrepreneurs: A Legitimacy Perspective

Ana Cruz-Suárez, Camilo Prado-Román, and Sandra Escamilla-Solano

Abstract One of the objectives of any country is to improve its economy by encouraging entrepreneurial activity. To that end, states, as well as companies, must create an image of viability and legitimacy before being able to receive any support. This study suggests that a country with greater legitimacy will obtain higher entrepreneurial activity, which will be moderated by the risk perceived by entrepreneurs. Through a research carried out on the eight most populated countries of the Eurozone, the existence of a positive trend between countries' legitimacy and their entrepreneurial activity is presented. Likewise, the study indicates that the risk perceived by the entrepreneurs has a negative relation with respect to countries' legitimacy.

11.1 Introduction

Since the 1990s, research on entrepreneurship is increasingly considering the importance of legitimacy for entrepreneurs (Aldrich and Fiol 1994; Jennings et al. 2013). Mainly because it is understood that legitimacy is a business resource (Bitektine 2011) that can contribute to reducing the percentage of entrepreneurs' failure (Zimmerman and Zeitz 2002). Companies must create an image of viability and legitimacy before being able to receive any support (Starr and MacMillan 1990) Thus, numerous companies are developing legitimacy initiatives, in pursuit of institutionalization (Riquel Ligero and Vargas Sánchez 2013; Cruz-Suárez et al. 2014b), because they consider that it can lead to gaining a competitive advantage, create new business opportunities, protect themselves from regulations, or obtain new clients (Brønn and Vidaver-Cohen 2008; Deephouse and Suchman 2008).

While these researches have provided valuable ideas for the understanding of entrepreneurial activity at individual level, we know relatively little about whether legitimacy at national level contributes to its entrepreneurial activity. In order to address this gap, we pose ourselves the following question: Does a country's legitimacy explain the existence of different entrepreneurship rates between

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Fig. 11.1 Country
legitimacy and
entrepreneurial activity
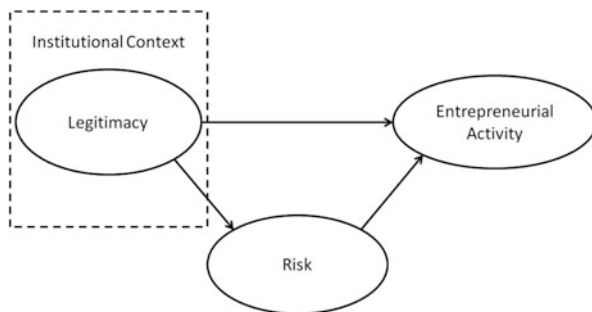
countries? Although researches in this field are scarce, there are some studies that prove the importance of the institutional context on the countries entrepreneurship activity (De Clercq et al. 2010; Hopp and Stephan 2012). It has been proven that countries with different institutional environments also show differences in their entrepreneurship rates (Stenholm et al. 2013). Among other reasons, this happens because the institutional environment creates uncertainty about the outcome that can generate an entrepreneurial project (Aidis 2005). In this regard, legitimacy plays a fundamental role, since its presence helps to reduce the risk perceived (Desai 2008).

The Fig. 11.1 shows the relation between the legitimacy of a country and its entrepreneurial activity. The perception that society has on the set of factors that constitute the institutional environment composes the legitimacy of the country, that is, the alignment with society. This would influence the entrepreneurial activity in the country. This relation would be mediated by the risk perceived when starting a new business.

The objective of this research is to demonstrate the relation between countries' legitimacy and their entrepreneurial activity. As well as to show the role played by the risk perceived in this relation. Furthermore, this study aims to make progress on the understanding of the entrepreneurial process in countries. In order to reach this objective a study will be carried out on the main countries that form the Eurozone.

11.2   Theoretical Framework

The legitimacy of a company has been defined as "the generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman 1995, p. 574). The importance of legitimacy in the entrepreneurial context lies in the fact that its possession leads to success and survival (Díez-Martín et al. 2010a). There are numerous researches that have proven this relation (Ruef and Scott 1998; Tornikoski and Newbert 2007; Díez-Martín et al. 2013a; Wang et al. 2014).

Although this concept has been widely applied to studies on entrepreneurship at the individual level, the same has not happened at national level. At this level, studies have focused on analyzing the effect of the various factors that compose the institutional context of a country, regarding its entrepreneurial activity. Thus, it has been demonstrated that a country's legal and regulatory context moderates the relation between associational activity and the new business activity (De Clercq et al. 2010). Likewise, the institutional environment has a positive relation with the rate of entrepreneurial activity (Stenholm et al. 2013).

We understand that, in the same way that occurs in a business context, a country's actions will influence its legitimacy and, by extension, its success. In our case, we consider that a country's actions, aligned with the motivations of entrepreneurs, will create a higher rate of entrepreneurship. In other words, when a country shows greater entrepreneurial legitimacy, it will obtain a greater entrepreneurial activity. The activities desired by the entrepreneurs are those that encourage them to continue with the business project (see Shane et al. 2003). Literature mentions numerous factors which, according to the mindset of an entrepreneur, would be more appropriate to benefit entrepreneurship. These factors would be related the encouragement and constraints of the business environment (Veciana and Urbano 2008) of the country. Some of them are; culture, norms, values (North 1990), legal environment (De Clercq et al. 2010), traditions or economic incentives, which influence the development and success of companies in a country (Aldrich and Fiol 1994), favoring or limiting entrepreneurial activity (Bruton and Alhstrom 2003).

The institutional theory suggests that legitimacy is able to drive a company to success, because to possess legitimacy facilitates the access to the resources needed to survive and grow (Zimmerman and Zeitz 2002). This fact is closely related to uncertainty. For example, it has been proven that companies with greater legitimacy obtain higher investments (Higgins and Gulati 2006; Pollack et al. 2012), because faced with the decision to invest in a company, investors prefer to entrust their money to those that behave in accordance with socially established norms, rules, values and models. In this regard, some authors have shown that companies with greater legitimacy present lower risk (Bansal and Clelland 2004; Cohen and Dean 2005).

Something similar happens with entrepreneurial activity. It has been demonstrated that the perception of risk is an important factor that influences the process of starting a business project (Simon et al. 2000). The greater the perception of risk the lower the intention to engage in entrepreneurial activity. The perception of risk can be considered as a consequence of the fear of failure (Arenius and Minniti 2005). As anyone else, entrepreneurs also show risk aversion. Nevertheless, they perceive it in a different way (Simon et al. 2000).

Extending this relation (legitimacy-risk) to a national context, it could be determined that the risk perceived by an entrepreneur, at the time of facing a business project, would be smaller in a country with greater entrepreneurial legitimacy. Thus, entrepreneurial activity should be higher on those countries with lower risk and greater entrepreneurial legitimacy.

11.3 Methodology

11.3.1 Sample

This research will analyze the relation between the countries' legitimacy, risk and entrepreneurial activity among the countries of the Eurozone. The Eurozone is formed by those countries that have adopted the Euro as their official currency. Currently, there are 18 official members. Our study was conducted on the eight member states of the Eurozone with a population higher than ten million inhabitants. The study was carried out in these countries since they face similar competitive environments. Unlike previous studies, these countries were chosen because they all are classified as the most developed countries (Stage 3) according to the Global Competitiveness Report, prepared by the World Economic Forum. The countries in the study were: Belgium, France, Germany, Greece, Italy, Netherlands, Portugal and Spain.

11.3.2 Data and Variables

To construct the variables of our model two sources of information were employed. The Global Entrepreneurship Monitor (GEM) and the Global Competitiveness Report (GCR). The first uses questionnaires to obtain information, while the second uses multiple sources of information, according to the variable wanted to be measured. For this research, we incorporated data of 4 years, from 2010 to 2013. The data was homogenized and standardized on a logarithmic scale. The Table 11.1 lists the variables used in the research and their source of information.

The measurement of legitimacy has been one of the major problems that researchers have encountered (see Díez-Martín et al. 2010b). In this research, the entrepreneurial legitimacy was measured through the regulatory dimension of legitimacy. Six variables were used for this purpose. The behavior of the variables "No. procedures to start a business" and "No. days to start a business" is indirect. To create the indicator, the values of these variables were subtracted from the value of the others. Previous researches have used these variables as indicators of the regulatory dimension (e.g. Stenholm et al. 2013).

The risk perceived by entrepreneurs and the entrepreneurial activity were measured using data from the GEM. This way of measuring both variables has already been used in previous researches (see Kwon and Arenius 2010; Liñán et al. 2011).

Table 11.1   Variables and data source

Dimension	Variable	Description	Source
Risk	FRFAILOP	Percentage of 18–64 population with positive perceived opportunities who indicate that fear of failure would prevent them from setting up a business	GEM
Entrepreneurial activity	TEAYY	Percentage of 18–64 population who are either a nascent entrepreneur or owner-manager of a new business	GEM
Legitimacy	EOSQ051	Property rights, 1–7 (best)	GCR
	EOSQ052	Intellectual property protection, 1–7 (best)	GCR
	EOSQ146	Diversion of public funds, 1–7 (best)	GCR
	EOSQ041	Public trust in politicians, 1–7 (best)	GCR
	STARTBUSPROC	No. procedures to start a business	GCR
	STARTBUSDAYS	No. days to start a business	GCR

GEM global entrepreneurship monitor, *GCR* global competitive report

11.4   Findings

For presenting the results we followed the proposal of Baron and Kenny (1986), who suggest that to analyze the effect of one variable over another, it is necessary to analyze all possible relations. The main findings have been collected in Table 11.2.

The data indicates that Belgium has been the country with the highest entrepreneurial legitimacy, followed by France and Netherlands, both during the 2010–2011 and the 2012–2013 period. Furthermore, the legitimacy of these countries increases from one period to the other. Nevertheless, this added increase corresponds fundamentally to the great increase that occurs in Netherlands and Portugal. The data reflects that Spain and Greece start off with negative results in legitimacy. This must not be understood as a lack of legitimacy of these countries, but as the result of a standardization of results in which these countries are showing a lower level of entrepreneurial legitimacy. The importance of these countries is that the transition from one period to the other has represented for them an increase on their legitimacy.

The country showing the highest entrepreneurial activity has been Netherlands, followed by Portugal and Greece. The average of the entrepreneurial activity of these countries has increased from one period to another. This data was to be expected due to the large scale destruction of companies caused by the financial crisis of 2008 throughout Europe. Nevertheless, not all countries have increased their entrepreneurial activity between both periods. Greece and France have suffered declines with respect to the 2010–2011 period.

Greece is by far the country where a greater fear towards failure exists. On the contrary, Netherlands is the country where a lower risk is perceived when carrying out a business project. It is noteworthy that between the two periods of analysis the fear of failure increases in all analyzed countries. This fact is produced in aggregate

Table 11.2 Variable results

Country	2010–2011			2012–2013		
	Risk	Entrepreneurial activity	Legitimacy	Risk	Entrepreneurial activity	Legitimacy
Belgium	1.580	0.672	1.606	1.643	0.703	1.654
France	1.585	0.760	1.286	1.623	0.690	1.185
Germany	1.580	0.690	0.691	1.607	0.712	0.728
Greece	1.648	0.829	−0.444	1.740	0.778	−0.221
Italy	1.568	0.380	0.304	1.728	0.585	0.362
Netherlands	1.470	0.886	1.270	1.525	0.991	1.486
Portugal	1.544	0.775	0.839	1.613	0.903	0.974
Spain	1.574	0.703	−0.341	1.591	0.736	−0.234
Media	1.569	0.712	0.651	1.634	0.762	0.742
s.d	0.050	0.152	0.760	0.071	0.129	0.723

Fig. 11.2 Legitimacy and risk 2010–2011
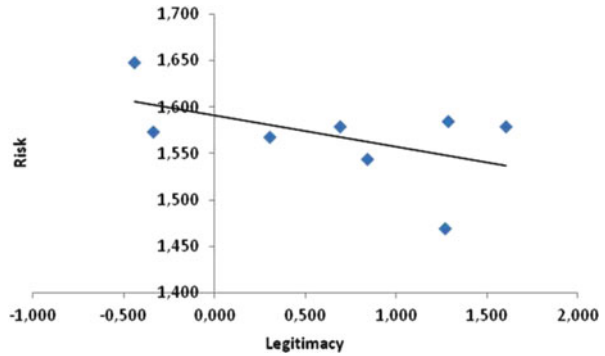
Fig. 11.3 Legitimacy and risk 2012–2013
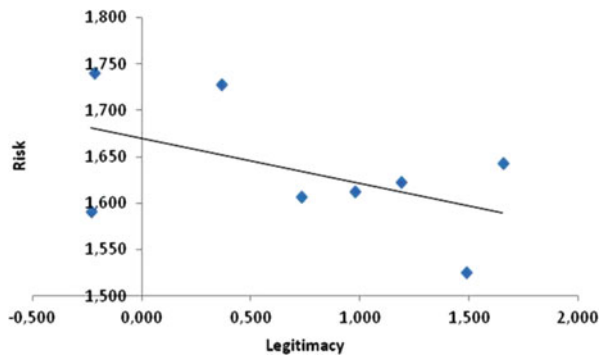
Fig. 11.4 Legitimacy and entrepreneurial activity 2010–2011
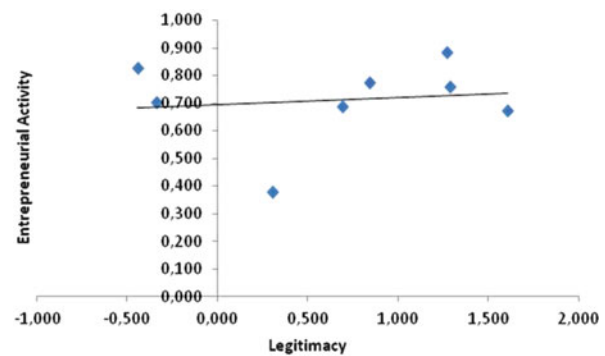
as well as individual data. No country, of the analyzed ones, is able to reduce the risk perceived by entrepreneurs to develop a business activity.

The Figs. 11.2, 11.3, 11.4, 11.5, 11.6 and 11.7 show the relations that take place between legitimacy, risk and entrepreneurial activity in the 2010–2011 and 2012–2013 periods. Regarding the relation legitimacy-risk, a negative relation between both variables was expected. The results show a negative trend between legitimacy and the risk perceived towards entrepreneurship. When the legitimacy of a country

Fig. 11.5 Legitimacy and entrepreneurial activity 2012–2013
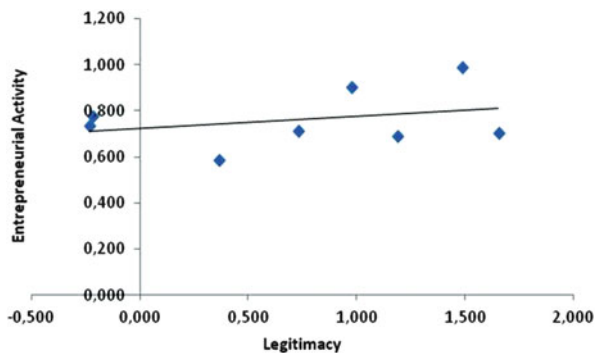
Fig. 11.6 Risk and entrepreneurial activity 2010–2011
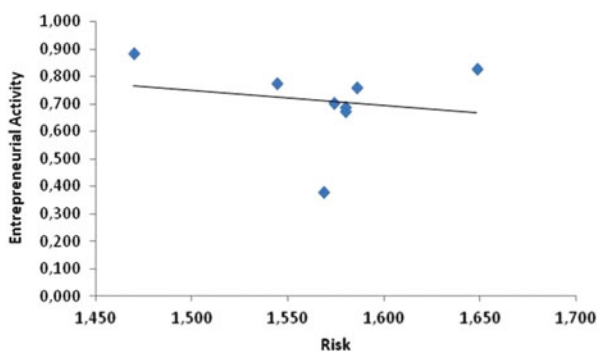
Fig. 11.7 Risk and entrepreneurial activity 2012–2013
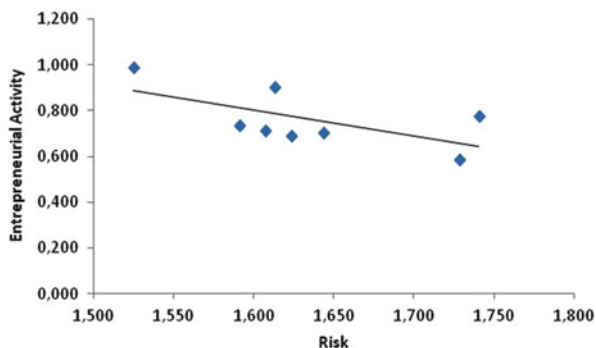
increases, the fear of starting a new business is smaller. This trend appears similarly in both analyzed periods.

The relation legitimacy- entrepreneurial activity would have to be positive. In this case, the results show a positive trend, in both periods, for these variables. In other words, when a country shows greater legitimacy, it will increase the entrepreneurial activity as well.

Finally, the relation risk and entrepreneurial activity indicates the existence of a negative relation. Hence, when the risk perceived by entrepreneurs is higher, entrepreneurial activity decreases in the country. This trend also appears in the two periods studied, confirming the trend expected for these variables.

11.5 Implications and Discussion

The objective of this research is to demonstrate the relation between countries' entrepreneurship, and its entrepreneurial activity. As well as to show the role played by the risk perceived in said relation. For this purpose, the relation between these variables has been analyzed on the eight most populated countries of the Eurozone, during two periods of time 2010–2011 and 2012–2013.

The results have confirmed the existence of a positive trend between countries' legitimacy and their entrepreneurial activity. These results are consistent with the proposal of the institutional theory (Meyer and Rowan 1977; DiMaggio and Powell 1983). As well as with previous studies that relate legitimacy to business results (Deephouse and Carter 2005; Díez-Martín et al. 2013a; Young et al. 2014).

Likewise, results have shown that the risk perception of starting a business in a country has something to say in this relation. A negative relation between risk and the legitimacy of the countries has been observed. In a similar way, but in regards to private companies, the research of Bansal and Clelland (2004) showed that companies with higher risk present lower levels of legitimacy. At the same time, results have confirmed the existence of a negative trend between risk and countries' entrepreneurial activity. This trend is in line with previous researches which show that the perception of risk reduces the intention to start a new business (Simon et al. 2000; Liñán et al. 2011).

The results obtained suppose an advance in the field of legitimacy, as it has been directly linked to a fundamental variable for business outcomes, risk. In this way, it helps to fill the gap in the legitimization process, between the initiatives of legitimacy and business results.

There are various managerial implications that emerge from this research. In line with the results and the implications described above, governments must realize that the failure to manage legitimacy could involve failing to achieve the outcomes expected from the country's economic growth and competitiveness, such as the increase of entrepreneurial activity (Bleaney and Nishiyama 2002). This research suggests that legitimacy is an essential variable for the countries to generate higher entrepreneurial activity. In previous researches, it has been noted that the institutional context has influence over the entrepreneurial activity (De Clercq et al. 2010; Stenholm et al. 2013).

This research also points out that countries are not simply passive elements in the legitimation process, but can actively work to influence and manipulate the perceptions of their environment (Oliver 1991; Suchman 1995; Díez-Martín et al. 2013b). From a strategic point of view, governments could consider the

legitimacy of the country as a strategic target. The management of legitimacy could be developed considering Suchman' proposals (1995), who establishes a set of strategies to gain, maintain and recover the lost legitimacy. The benefits of these strategies have been proven for private companies (e.g. Lamberti and Lettieri 2011).

Despite the results achieved and the usefulness of its implications, the study has several limitations that suggest areas for future researches. Firstly, results should be interpreted with caution and considered as approximations, until the strength of this model is confirmed with other empirical studies. For these new researches, it would be advisable to increase the sample of countries and use appropriate techniques for the analysis of time series. Secondly, the analysis of the legitimacy could be completed taking into account the different dimensions that it includes (Deephouse and Suchman 2008; Bitektine 2011; Cruz-Suárez et al. 2014). Thus, one could examine what dimension of legitimacy has a greater effect on the risk of starting a new business and over the entrepreneurial activity. Finally, it would be necessary to better verify the risk's mediating effect between countries' legitimacy and entrepreneurial activity. To that end, the model could be analyzed following the guidelines proposed by Baron and Kenny (1986) which are similar to those of Andrews et al. (2004).

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Chapter 12
Entrepreneurship and Family Business: Does the Organization Culture Affect to Firm Performance?

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Abstract Family businesses are well known due to their entrepreneurial character and the founder's influence, or dependence on him. These features lead them to develop specific organizational cultures. The organizational culture, if it is coherent with its family character in the structure of the ownership and the degree of professional management, will produce a specific kind of company. Consequently, it should be highly efficient and, therefore, reach good financial performance. Family owned companies with clan or adhocracy cultures are proposed as efficient organizational configurations. On the other side, those utilizing market or hierarchical organizational cultures will take the opposite direction.

12.1 Organizational Culture and Business Performance

There are many corporate culture definitions. Based on a selection of them (Schwartz and Davis 1981; Hofstede 1984; Schein 1985; Arogyaswamy and Byles 1987; Barney 1986; O'Reilly and Chatman 1986), it can be deduced that corporate culture refers to a group of values, beliefs, and behaviors belonging to the essential identity of the organization. All of them have its origin in founders' thoughts and knowledge that have evolved over years up until today through their own experiences, new social trends, and executives' values (Ortega Parra and Sastre Castillo 2013).

These beliefs, expectations, and behavioral patterns severely configure the conduct of individuals and groups of the organization and, this way, they make it different from other organizations (Alvesson 1993).

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The business culture could be understood as a tool that the company management can use to develop some competitive advantages to obtain greater organizational success (Alvesson 1993). It may also be approached as the organization itself, implying that it is highly related to all company resources, the values and the underlying assumptions (Hall et al. 2001). That is, it can be examined from the decisions already adopted within the company, or be delineated starting from other organizational resources.

The interest in studying the business culture is based on the values behind it, which contribute to a better performance.

To this respect, Rosenthal and Masarech (2003) assert that values:

(a) Guide and inspire employees' decisions, what makes a faster and more decentralized work performance;
(b) Provide some points of reference and stability during times of big changes or crisis;
(c) Create a more personal connection between the company and the employees;
(d) Align employees with different interests to common objectives so as to create a sense of community and support within the work team;
(e) Externalize their idea of the organization. This way, customers and suppliers can describe how the company works, and values become a path for setting up a loyalty-based context.

The most studied hypothesis in academia is that clearer and more defined cultures foster business performance. This hypothesis is based on the intuitive idea of organizations that profit from having motivated employees while they are devoted to common objectives (Peters and Waterman 1982; Deal and Kennedy 1982; Kotter and Heskett 1992).

Particularly, the benefits of a strong business culture derive from the effects of having values that are shared and spread all over the organization (Kotter and Heskett 1992; Gordon and Di Tomaso 1992; Burt et al. 1994). Thus, a strong culture:

(a) Strengthens coordination and control within the company;
(b) Improves the acknowledgment of the goals amongst employees;
(c) Increases workers' effort.

As to support this rationale, several quantitative analyses have shown that companies with strong cultures obtain better performance than those with weak ones. In particular, Kotter and Heskett (1992) revealed that companies that intentionally managed their cultures obtained better outcomes than those who didn't over a period of 10 years.

Nevertheless, some authors explore the nuances of this effect. Thus, Sonresen (2002) points out that the companies with more defined cultures drive performance stability within relatively steady environments. But, as the volatility increases, those benefits sharply diminish. March (1991) suggests that the companies with more defined cultures are excellent to make use of well-established competences,

but they find difficulties to explore and discover new competences that better fit to changes in environment.

12.2   The Family Business as an Entrepreneurial Manifestation

Entrepreneurship is not a homogeneous phenomenon as Sastre Castillo et al. (2014) pointed out. Not all entrepreneurs think and work in the same way. They will behave according to the economic, cultural and social context in which they develop their activities, and to the processes they aim to implement (Thornton 1999; Morris et al. 2002). Besides, each entrepreneur pursuits different results and has different knowledge and motivation (Scott 2011).

Morrison (2006) establishes an interesting typology of entrepreneurs based on criteria such as entrepreneurs' characteristics, motivations and attitudes:

(a) Coentrepreneurs: those are relatives and partners. They perform their work with more accountability and effectiveness (Smith 2000; McKay 2001).
(b) Ethnic: they come from ethnic minorities. They used to operate in market niches related to them (Ram et al. 2000; Collins 2002; Basu 2004).
(c) Familiar: it is developed within the family and some family members are employees of the firm (Cromie et al. 1999; Carter et al. 2002).
(d) Intraentrepreneur: a family member, excluding the founder, who adapts and implements business procedures from that kind of activities (Carrier 1996; Antoncic and Hisrich 2001).
(e) Lifestyle: the objective is to provide and maintain a comfortable and relaxed way of living (Kuratko and Hodgetts 1998; Andrews et al. 2001).
(f) Micro: owners with less than ten people working at their companies (Lynch 1999; Greenbank 2000).
(g) Business portfolio: The entrepreneur owns several business simultaneously (Carter 2001; Morrison and Teixeira 2002).
(h) Serial: The entrepreneur owns several businesses consecutively. The market opportunities steer when he decides to get into or to leave the activity (Day 2000; Carter 2001).
(i) Social: The entrepreneur combines sales skills with social objectives and goals (Smallbone et al. 2001; Shaw et al. 2002).

Each one of these kinds of entrepreneurs has differentiating features that are exposed in cultural differences in their companies.

Specifically, regarding family firms, the studies on them revealed their entrepreneurial mindset Zahra et al. (2004), Rogoff and Heck (2003), Hall et al. (2001) and Pistrui et al. (2001).

It was also highlighted other specific aspects such as the influence of the founder and his values (Poza et al. 1997), the great effect of the founder's leadership

(Sorenson 2000), and the impact of the story of the company and the culture of its environment (Chrisman et al. 2002; Steier 2001; Pistrui et al. 2001; Corbetta and Montemerlo 1999).

12.3 Cultural Specifications at Family Firm

When the family firm is studied, there are typically two specific problems that attract the attention of researchers: issues regarding succession and the level of professionalization.

The process of professionalization of the company demands a change of mindset, due to the necessity of yield some power to people outside the family so as to get a more business oriented management.

This trend is usually a consequence of the size the company reached, and the necessity to achieve better competitive capabilities – that demands to transcend family limitations and avoid the problems that might arise in family argues on control of the business or taking some of the decisions. Appointing executive positions based solely on family ties could become a serious mistake if it is not performed under strictly professional criteria.

These family bonds, which decisively affect management (Gómez-Mejía et al. 2001), accentuate the main differences with other kinds of organizations (Dyer 1986).

Not only the presence of values, beliefs and different interests but also the role of them in the economic and financial success of the family business – where bonds amongst the members of the family impact their market positioning – make this study highly interesting and valuable.

The cultural differences in family firms have been occasionally compared to non-family ones (Zahra et al. 2004), but the focus was seldom aimed at professionalization in management.

Regarding the dominant culture in companies, we based our research on the works of Cameron and Quinn (1999), Quinn and Spreitzer (1991), Denison and Spreitzer (1991) and Stock et al. (2007).

According to these authors, four kinds of culture may appear within companies:

(a) The *clan or group culture* refers to human relationship model from organizational theory. Flexibility and change are emphasized; strong human bonds, affiliation and orientation to internal organizational relationship raise as important features;

(b) The *adhocratic or change culture* comes from the open system model. This one underlines flexibility and orientation to the environment. It is focused on growth, resources acquisition, creativity and adaption to external environment.

(c) The *rational or market culture* derives from the objectives rational model. It is oriented outside the company but also keeps control under sight. It is centered in
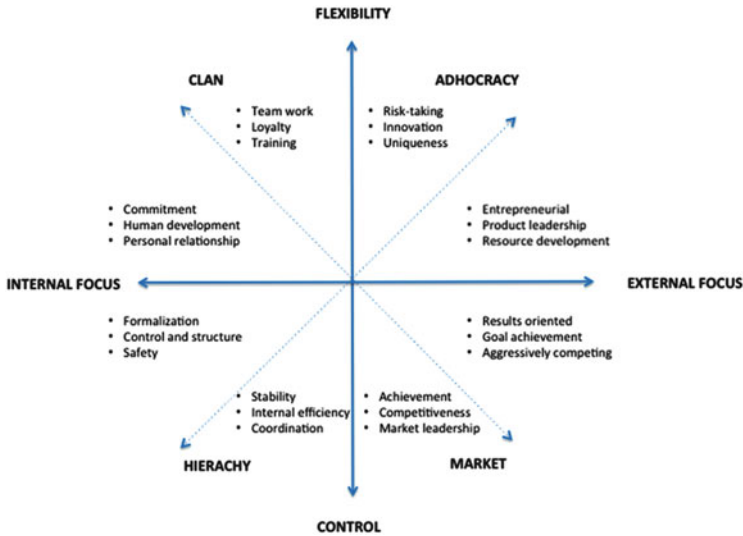
Fig. 12.1 A tool for valuing the organizational culture (Source: Stock et al. (2007))

productivity and achievement, and it has well defined objectives. External competitiveness is a key motivation factor.

(d) The *hierarchical culture* comes from internal processes where the stability is crucial. However, it is oriented to internal elements of the organization. This way, uniformity, coordination, internal efficiency and internal rules happen to be the main features.

A key assumption for this model is that each one of the quadrants represents a cultural orientation (Denison and Spreitzer 1991). An organization can have a combination of different cultural orientations and it might be inclined to all four of them. Although there is a restriction, that is, the more oriented to one of the culture types, the less oriented to the other three types. Therefore, it'd exist a balance of the four cultural orientations (Stock et al. 2007) (Fig. 12.1).

12.4 A Proposal of Moderation of the Family Character of the Firm on the Effect of Culture on Performance

The effect of culture on organizational performance has been largely studied, but there is room for further qualification of this relationship, in particular in the field that is the aim of this work: the study on how the presence of the family on the ownership and management moderates that relationship.

In order to analyze this relationship, it is necessary to classify companies, at least, in family or non-family owned categories (as in Chua et al. 2004). Despite of

the disagreements on what defines a family business (Chua et al. 1999), scholars agree on some fundamental variables: family stake at ownership structure, family involvement in executive management and generational transfer.

Then, our proposal is based on the differentiation of companies considering their level of professionalization. As a result, three types of companies emanate from this proposal:

(a) Firms owned and managed by a family. The structure of the ownership and the management is highly concentrated on family members willing to carry out the business in the future;
(b) Family firms that are professionalized. The management team is mainly formed by independent non-family members;
(c) Non-family firms. The structure of ownership shows a significant level of dilution. The majority of the management team members are non-owners.

On the other hand, measuring organizational success can be considered a challenging task, and that is why there are several ways and methods to determine the outcomes of the company (Snow and Hebriniak 1980). Business literature provides two kinds of indicators, quantitative and qualitative. The first of them is generally preferred since it provides a higher level of objectivity (i.e. financial return).

The work that serves as a reference point to link culture to performance is Deshpandé et al. (1993), based on the analysis of a sample of 50 Japanese companies. It is worth highlighting that, although the predominant self-declared type of culture is the clan – consistently with most of the literature on Japanese companies (Florida and Martin 1991) – the four types of culture have a significant presence amongst them. In their conclusions, the authors find that market culture is associated with better performance. Adhocracy leads also to good performance. In the case of the clan and hierarchical cultures the authors found poor performance.

From this starting point, and with a configurational perspective, our approach is based on how the conjunction of a determined culture and a determined level of professionalization at family firms allows to gain better outcomes under the equifinality criterion. Then, as of previous literature, we draft the main relationships and express them through propositions.

The researches on clan culture assume that this configuration is well rooted in family businesses. These firms are clearly identifiable at shareholder structure – where the family members own the majority of the stake, and are present in the power and management structure – where the family members adopt the main decisions for the organization. As Schulze et al. (2001) emphasized, organizations with a clan culture are more risk averse. That condition may overweigh old traditions and make them resistant to changes in environment (Kets de Vries 1993; Gersick et al. 1997). Given that family owned companies are usually younger and smaller than the rest (Jorissen et al. 2005; Galve and Salas 2003; Gersick et al. 1997), their features facilitate and reinforce the presence of internal values. In this sense, these values would unify and define the group against external market values and would have a positive impact in terms of achieved outcomes.

Therefore, we express the first proposition of our work:

P1: Companies with clan type organizational culture will obtain better business outcomes in case they are family owned and managed

The change or adhocracy as organizational culture has been widely examined in business literature referred to family owned companies (Zahra et al. 2004; Gudmundson et al. 2003; Hall et al. 2001; Pistrui et al. 2001), although empirical evidences neither completely concur nor are fully conclusive.

A large number of works state that the entrepreneurial character of family businesses (Zahra et al. 2004), due to the presence of some values that are change enablers – such as group or team values –provides an effective counter-balance of the negative aspects of the culture of these companies, for example, their poor orientation to market values.

This rationale is supported by Chandler et al. (2000), who find that the most innovative culture takes place in smaller companies, where there are less formalized human resources policies and worse organizational resources; these are typical features traditionally related to family firms.

Similarly, Ogbona and Harris (2000) state that there is a greater trend to innovation within less bureaucratic companies, where there is a participative leadership, as it is habitual to family owned firms. In these companies, leadership is shared through the members of the family, and these family links occasionally reach other members of the organization (Zahra et al. 2004).

Hence, we state the second proposition:

P2: Companies with adhocracy as organizational culture will obtain better business results in case they are family owned and managed

The rational or market culture is associated to values that are linked to the environment, the achievement, competitiveness, or market leadership. Thus, this culture raises antagonisms with family owned and managed firms, as a result of their ownership structure, risk adversity, the role of altruism, and their lack of size and financial resources.

This idea is supported in literature by the works of Donckels and Frölich (1991). These authors state that the strategic positioning in family owned and managed companies is more conservative and less oriented to reach growth and profit (less market orientation). Similarly, Dyer (1986) argues that family owned businesses are organization that penetrate into a market niche and tend to stay in it, probably missing growth opportunities in the market due to this conservative character. These ideas lead us to suggest our third proposition:

P3: Firms with a market organizational culture will obtain better business results in case they are not family owned.

The hierarchical culture is related to security, formal rules, control, structure, coordination and internal efficiency values.

In most of the family owned businesses the goal is to achieve a high degree of happiness and satisfaction for workers, customers and suppliers (Donckels and

Frölich 1991; Cabrera and Ayala 2002), which could not be achieved through too formalized and highly bureaucratic organizations. Family owned businesses commonly have less human and financial resources and, therefore, it would not be efficient to build highly hierarchical structures. Besides, the lack of resources is often faced through flexibilization and less bureaucracy (Rienda and Pertusa 2002). This leads us to suggest our fourth proposal.

P4: Firms with hierarchical organizational culture will obtain better results in case they are not family businesses.

12.5 Conclusions and Future Lines of Research

We can conclude that maybe the main interesting facet of business culture is its ability to influence firm performance.

It is frequently mentioned in business literature that this performance is superior in the case of more defined and clearly designed cultures.

This could lead to question what would occur in the case of family firms to this respect, given that the founder has great influence in emerging company culture, and how the orientation of this culture affects the performance depending on the ownership structure and the level of professionalization of the company.

The starting point is the equifinality, that is, the same levels of performance could be achieved from different combinations of ownership structure, professionalization, and organizational culture, in a way we may designate them as efficient configurations.

The propositions expressed in this work lead to allege that family businesses would obtain better business performance under clan or adhocracy cultures. Meanwhile, non-family owned companies would get better outcomes under market or hierarchical organizational cultures.

The future lines of research could be aimed to corroborate empirically the abovementioned relationships.

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Chapter 13
The Role of the Galician Institute for Economic Promotion and Financing Facilities for the Galician Entrepreneur (Spain)

José Álvarez García, María de la Cruz del Río Rama, and Carlos Rueda-Armengot

Abstract When we talk about entrepreneurship in the Autonomous Community of Galicia, it is necessary to mention the role of the Galician Institute for Economic Promotion (IGAPE) in fostering entrepreneurship through the tools that this organism makes available to the entrepreneur, which range from training, to resources and tools, to undertake, to advice. Obtaining funding to start up a project is one of the biggest concerns and main obstacles to be overcome by the entrepreneur, therefore in this paper we will describe the aids and main financing facilities that are currently available to the entrepreneur in Galicia.

13.1 Introduction

In the current economic situation of recession in which the unemployment rate has been close to 26 % in the first quarter of 2014, according to data of the National Institute of Statistics (INE), entrepreneurs are an increasingly important figure and should be taken into account to revive the Spanish economy. There are many studies that show the potential of entrepreneurs to revive the economy and create new jobs (Wennekers et al. 2005; Audretsch 2012).

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Entrepreneurial activity not only plays an important role in the economic development process but also in regional and social development (Wennekers and Thurik 1999; Guzmán and Santos 2001; European Commission 2003; Jaén 2010; Jaén et al 2013) by increasing employment opportunities which enables to solve unemployment problems (White and Reynolds 1996), improve the level of technical innovation and promote economic growth (Fernández-Serrano and Romero 2012).

Funding is one of the key factors to undertake (GEM 2013) and having access to it becomes a major difficulty faced by entrepreneurs in order to implement their projects, due to the high risk involved at the start of the entrepreneurial process (Blumberg and Letterie 2008). The difficulties are greater when they are in their initial or post – constitution phase (Fraser 2005, pp. 59–63).

Many are the researchers who claim that access to financing is one of the major obstacles to entrepreneurship (Krueger 2000; Liñán and Rodríguez 2005; Urbano 2006; Sánchez et al 2012), hence the importance that countries launch instruments and mechanisms (government aid schemes, mutual guarantee societies, equity loans, etc.) which aim to improve access to financing and thus promote entrepreneurship.

Considering the above, the aim of this paper is to collect the appropriate financing offered for each of the different stages of the entrepreneurial process, as well as, aid schemes and subsidies from public institutions available to Galician entrepreneurs. The purpose of this paper is on the one hand to verify whether financial institutions, society and the government have reacted to the importance that entrepreneurship has to revive the economy by offering adequate financing, subsidies and aid schemes for the implementation of business projects. On the other hand, putting all these offers together in a document can serve as a guide to entrepreneurs in Galicia who in many cases do not know the forms of financing. Descriptive methodology is used to do this, explaining the most important financing instruments and aids and subsidies from public institutions to entrepreneurship.

To respond to the objective, the work is divided into several sections. Firstly, the role of the Galician Institute for Economic Promotion (IGAPE) of entrepreneurial activity in Galicia is defined. The third section describes the financing facilities for entrepreneurs in Galicia. The final section shows the conclusions.

13.2 Entrepreneurship and the Role of the Galician Institute for Economic Promotion (IGAPE)

In Galicia, the agency responsible for facilitating entrepreneurship, as well as business consolidation and growth is the Galician Institute for Economic Promotion (IGAPE), which depends directly on the Regional Ministry of Economy and Industry. Born in January 1991 under the regional Law 5/1992 of 10 June in which its objectives are found. However, in 2006 the institute restructured its activities by designing a new model of economic promotion based on the following areas of action, which are on its website (www.igape.es): (1) promoting the creation

Table 13.1 Resources and tools for the entrepreneur in Galicia

Tools	Content		
Setting up a business (the Unit Galicia Emprende is created : integrated support for implementation of ideas)	**Procedures:** (PAE) IGAPE points of advice to the entrepreneur, choice of legal form		
	Business plan: Business plan models, guide for developing a business plan, tool to develop the economic-financial plan – Viable 2020		
	Manuals for entrepreneur		
	Manuals for self-employed		
Advice and information	Guide of entrepreneurial activity, management manuals, management books		
Training	Performance of various training activities throughout the year		
Financing	Aid schemes	Microcredits to entrepreneurs, self-employed and microenterprises	
		IGAPE aid for entrepreneurs	
	Aid search engine	http://www.igape.es/gl/component/igpbdaxudas/organismos	
	Financing guides	Basic financing guide	
		In-depth financial analysis of the enterprise	
		Bank negotiation	
		Financial instruments for internationalization of the enterprise	
		Attracting investors to your project	

Source: Official Website IGAPE (http://www.igape.es)

of new businesses and strongly encouraging entrepreneurship, (2) increasing the competitiveness of Galician companies through innovation and technological development, (3) attracting investment in Galicia, (4) facilitating internationalization and (5) supporting cooperation and collective business projects.

IGAPE has majority shareholding in two public enterprises, XesGalicia and the European Business and Innovation Centre of Galicia (BIC Galicia). BIC Galicia was created on July 30, 1991 as an agency dependent on the Ministry of Economy and Industry of the Government of Galicia, which works at the beginning in coordination with IGAPE and Xesgalicia with the main objective of providing services to the Galician society, thereby promoting entrepreneurship, supporting business creation, providing future entrepreneurs with the necessary knowledge and skills necessary to manage their businesses and supporting the consolidation and innovation in the Galician business sector. Currently, since 2000 the functions and resources of Bic Galicia are integrated in the IGAPE as 100 % of its capital belongs to IGAPE.

To achieve the main aim of IGAPE "promoting the creation of new businesses and strongly encouraging entrepreneurship," the agency makes available the following resources and tools to future entrepreneurs on the official website of IGAPE (Table 13.1).

In the activity report of IGAPE for 2012, its activity is shown in Table 13.2:

Table 13.2 Support for IGAPE entrepreneurship

Training and support to business plans	
Activity	Number of entrepreneurs
Diffusion of entrepreneurial culture	1,614
Generation and maturation of ideas	268
Valuation of business projects	150
Tutored entrepreneurs	114
Training activities EDUEMPRENDE	3,975
Motivational training activities in the three Galician universities	545
Motivational activities in self-employment for the unemployed. In collaboration with the ministry of labor and welfare	595
Total entrepreneurs advised or trained	**7,261**
Supporting the creation of new companies (Re-emprende program)	
53 new entrepreneurial projects	
5.9 million euros invested	
1.6 million euros of support provided	

Source: IGAPE 2012 (Report of IGAPE activities in 2012)

13.3 Financing Facilities for Entrepreneurs in Galicia

One of the main problems that entrepreneurs face is seeking funding to launch their business as they do not have access in the same conditions as big enterprises or already established businesses do, as the risk of solvency increases. In this context, the funding sources entrepreneurs can turn to (in their different development stages) can be divided into funding with own resources (personal savings, family equity, equity from friends), private funding and public funding. Figure 13.1 shows the usual financing instruments in the inception stages (seed and start-up).

13.3.1 Own Resources

13.3.1.1 3F (Family, Friends and Fools)

Although they are not strictly investors, but rather people from the founder's environment, they usually cover the initial and riskiest phase of the financing cycle of startup. They are basically used for small projects led by inexperienced young people and are small-amount investments.
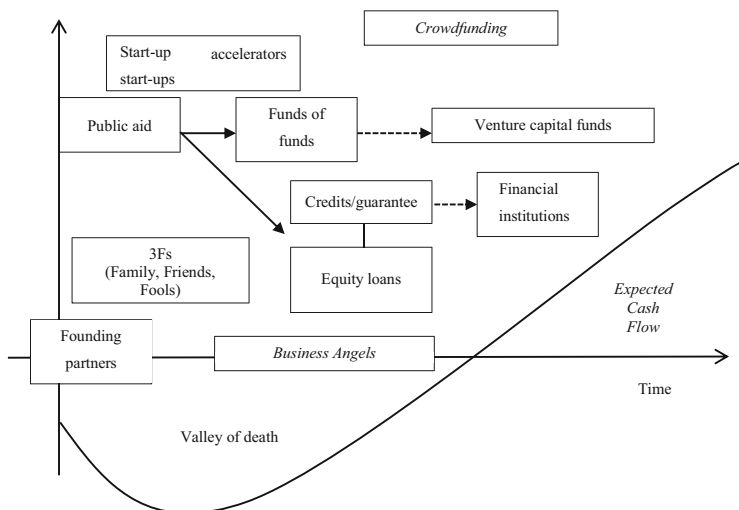
Fig. 13.1 Sources of corporate financing in inception stages (seed and start-up) (Source: Hoyos (2013, p. 125))

13.3.2 Private Funding

13.3.2.1 Venture Capital Firms

Venture capital is a source of funding aimed primarily at SMEs with high levels of risk, which therefore find difficulty to obtain financing through other instruments. Venture capital companies are public limited companies whose corporate purpose is to make capital contributions by taking temporary equity stakes in companies (non-financial and non-real estate). The moment the company increases its value, the venture capital firm withdraws obtaining a profit.

In Spain, venture capital firms are regulated by Law 25/2005, of 24 November, regulating venture capital firms and their management firms and depending on the moment the venture capital company enters a company, this will give rise to different types of investments: just been born-seed capital; have been born but have not started to generate profits-capital to start-up; to enable their growth-capital for expansion; for the acquisition of a company-leveraged acquisition. In the English-speaking world there is a clear distinction between venture capital companies which focus on developing business projects that are in early stages (*start-up*) and are called *Venture Capital* and those whose business is to invest in companies that are already consolidated and these are denominated *Private Equity*.

On the website of the Spanish Securities and Exchange Commission (CNMV) (www.cnmv.es), the full list of venture capital firms registered in Spain can be found, namely 128 (consultation date 24/04/2013) of which 8 are from Galicia: Unirisco Galicia, S.C.R., S.A.; Univest SGCR S.A.; VENTUREWELL CAPITAL, SCR, S.A.; XesGALICIA, S.G.E.C.R., S.A.; Arnela Capital; Sodiga (Sociedad para el Desarrollo Industrial de Galicia); Caixanova Invest S.C.R.; NETACCEDE S.C.R.

13.3.2.2 Business Angels

In this particular funding source, a private individual (a natural or legal person) provides equity capital denominated intelligent capital (money, expertise and personal contact network or a combination of these factors) for the creation of businesses in exchange for shareholding. In this case, the money provided comes from a private individual in contrast to venture capital companies that manage other people's money through a fund. The capital provided can be aimed at implementing a project (seed capital), at companies that are at the start of an activity (start-up capital) or at companies that have to face a growth phase (capital expansion), which are not speculators but rather invest their own capital in innovative companies with the desire to get involved in an exciting project. They are temporary investments with the aim of recovering the invested capital and obtain a premium for the risk taken, usually in a short period between three and seven years, investment ranging between 20,000 and 200,000 € (Matés 2011).

Currently Business Angels are grouped generating Business Angels Networks, in which private investors providing smart capital to entrepreneurs who need funding and expert support are grouped, that is, facilitating contact between investors and entrepreneurs. You can see a list of Business Angels networks in AEBAN (Spanish Association Business Angels www.aeban.es) and in Galicia there is:

– BANG-Business Angels Network Galicia: it was established in 2004 at the initiative of the Business Confederation of Ourense with the current support of the Ministry of Labor and Institute for Economic Development of Ourense Province (INORDE) (www.bang.es).
– Innoban-Network of angel investors for innovation: it was established in 2008 by two founding partners. http://www.businessangelsinnoban.es
– Redinvest-Private Investors Network: it was created by the Association of Employers of Galicia-Financial Club of Vigo. (http://www.clubfinancierovigo.com/area_redinvest.asp)
– Inberso: *"it is an initiative developed by the University of Santiago de Compostela which aims at establishing an interconnection network for channeling resources from private capital, either formal or informal, to the scientific-research area of the Latin- American Space of Higher Education (Spain, Portugal and Latin America)"* (www.inberso.com).

The research "Business Angels in Spain 2011" conducted by Necotium provides evidence of the consolidation of this funding source, becoming the primary source of funding for early-stage entrepreneurs in Spain ahead of venture capital funds. Spanish Business Angels invested in 2011 in seed capital or start-up capital (seed and startup) 59.4 million euros in 179 companies with an average investment of € 332.015 (Matés 2011).

13.3.2.3   Mutual Guarantee Societies (MGS)

They are financial institutions formed by small and medium-sized enterprises (SMEs), non-profit and specific field of action, by regional governments or sectors, which aim to facilitate access to credit to these businesses and improve their general financing conditions. This objective is achieved by providing guarantees to banks, savings banks or other funding sources that require them (Bebczuk 2001, p. 3), which improves the conditions of access to financial sources, reduces financial cost, increases the funds obtained due to a risk reduction. (De la Fuente and Bergamini 2002, pp. 4–6). They are also responsible for providing information and advice, negotiating and improving credit lines and processing subsidies. In return, the SME is required to purchase a membership fee of SGR, becoming a participating member of the SGR (permanent financial investment). We must emphasize that it is not a financial source used for the implementation of the business, as there is insufficient information on extending a guarantee. These companies are regulated by law 1/1994, of 11 March, on the legal regime of mutual guarantee societies.

In Galicia there are two consolidated Mutual Guarantee Societies, SOGARPO and AFIGAL. They are in different regions; SOGARPO is in A Coruña and Lugo and AFIGAL is in Pontevedra and Ourense.

13.3.2.4   Crowdfunding

In Spanish it is called mass financing or micropatronage and is based on bringing together creators and patrons via the Internet (online and collective financing means), so that the entrepreneur seeks funding through internet. Thus, individuals can invest in projects of new creation (start-up) from small disbursements. You can see a list of Crowdfunding platforms in the Spanish Association of Crowdfunding (http://web.spaincrowdfunding.org/miembros/).

13.3.2.5   MAB

The MAB or alternative stock market is a financing market (trading system) for small-cap companies supervised by the Spanish Securities and Exchange Commission (CNMV) and promoted by Spanish Stock Exchanges and Markets (BME), which uses the Spanish Stock Exchange Interconnection System (*SIBE*). It is not a very well- known market by SMEs and therefore is used little in Spain. It is designed for both Spanish and foreign public limited, small-cap companies whose aim is to expand and therefore seek funding.

To be listed on this market, companies must have 100 % of their paid-up capital, have less than 6.5 million euros of equity, have a "free float" (capital which circulates freely in the Stock Exchange) of at least two million, have audited accounts under international standards IFRS, designate on a permanent basis, a

registered adviser and have a liquidity provider to help them find the necessary counterpart so that the formation of their share price is as efficient as possible, while facilitating liquidity (Circular 5/2010: Requirements and procedures for the inclusion and exclusion in the MAB of shares issued by companies in expansion).

13.3.2.6 Private Equity

Private Equity are institutions that invest in companies with sustainable growth and where the project has matured and has consolidated, with a successful business model, proven sales and stability, significant generation of cash flow (Cendrowski 2008). In exchange they control a percentage of the company or its shares. Private Equity International publishes an annual ranking of the top 300 managers of private equity in the world (https://www.privateequityinternational.com).

13.3.2.7 Bank Financing

It is the traditional way to finance a project and in Spain 80 % of the financing of business projects that start or Start-ups comes from banks and 20 % from non-bank sources. However, it is the most difficult financing to obtain in the early stages of the project due to its strong guarantee payments, so it is only obtained by very solvent or realistic projects (AUGEO Consulting Group).

13.3.3 Public Financing

13.3.3.1 Public Aid and Subsidies (Public Administration) Aimed at Creating Enterprises

The aid provided by government agencies is varied but it is usually aimed at the following objectives: direct aids to help hire workers, social security contributions, tax incentives, personal advice, investment aid, aid to encourage innovation, aid for improving competitiveness, aid for R&D, financial aid. In summary, we can divide public aid into two major groups:

1. Bonuses to self-employed contribution. In 2014 there are important developments: (1) flat fee for all new self-employed (fee of 50 € per month which increases depending on time), (2) flat fee for those aged over 30 (since the new law of entrepreneurs, the flat fee condition of 50 € for young people extends to those aged over 30), (3) self-employed with disabilities, (4) cessation of activities due to maternity, paternity and similar situations, (5) self-employed collaborators and (6) other situations with reduced fee (the conditions can be found under Royal Decree Law 4/2013 of 22 February on support measures for

entrepreneurs and growth stimulus and job creation and the Law of Support to Entrepreneurs and its processing, approved by Congress on September 19, 2013, not yet published in the BOE (Official State Bulletin)).

2. Incentives for hiring workers. The Employment Promotion Program 2014 extended the measures taken to stimulate hiring workers; (1) 100 % bonus of contributions to Social Security for 12 months, renewable for another 12 for part-time, permanent or temporary contracts, linked with training in companies with less than 250 workers or self-employed, or part- time contracts for under 30s, for companies with up to 9 workers or self-employed, (2) bonus of 100 % of the employer contribution for common contingencies during the first year of contract for permanent contracts, either full or part-time, for under 30s by companies with up to 9 workers or self-employed, (3) 3 years of bonus of contributions to social Security for permanent contracts, either full or part-time, for long-term unemployed over 45, self-employed under 30, (4) reduction of the employer's contribution to social security for common contingencies of up to 50 % for temporary contracts, either full or part-time, for under 30s without work experience or experience of less than 3 months, (5) bonus for 3 years of contributions to the Social Security for trainee contracts for first jobs which subsequently are transformed into permanent contracts, (6) bonus for 3 years of contributions to social Security for contracts for young people by social economy entities. (see Training Plan 2014).

3. Tax incentives: the new Law 4/2013 of Support to Entrepreneurship and its Internationalization, includes incentives and modifications to the current labor legislation aimed at promoting entrepreneurship. We can mention the following that affect entrepreneurship regarding tax incentives: (1) a new "special regime on the cash basis" is created, (2) new tax incentives in corporation tax and income tax, (3) promotion of entrepreneurship and self-employed through: promoting self-employment, tax incentives for newly created companies and starting of economic activity, (4) tax incentives for financers of entrepreneurial projects (Business Angels or seed capital).

4. Work Incentives: included in the new Law 4/2013 of Support to Entrepreneurship and Internationalization, such as reductions of self-employed fees in the case of multi-activity self-employed, Social Security reduction for self-employed and associated working partners of work cooperatives, which are included in the Special Scheme for Self-Employed (RETA) and quota reductions and subsidies for disabled people, as well as employees. It also establishes work incentives to promote business creation and self-employment: receiving capitalization of unemployment benefits, expanding the possibilities of capitalization of unemployment benefits and new subsidized contracts.

5. Subsidies or aid provided by national and regional public bodies. At state level, the following organizations usually implement support programs for enterprises:

   – National Innovation Company (ENISA). Public Company dependent on the Ministry of Industry, Energy and Tourism aimed to financially support SMEs in their early stages of life (www.enisa.es) through an equity loan. The equity

loan is a financing instrument used in this case to give a public subsidy, but it can also be used by a private investor to finance a Startup, becoming temporarily a partner in the company. The lines open at this moment by ENISA cover all stages of the entrepreneurial process: (1) Creation, Line ENISA Young Entrepreneurs and Line ENISA Entrepreneurs; (2) Growth, Line ENISA competitiveness; (3) Consolidation, Line ENISA Alternative Markets and Line ENISA mergers and acquisitions.

– Official Credit Institute (ICO). The credit lines ICO 2014 for SMEs and self-employed are: ICO companies and entrepreneurs, ICO Guarantees SGR 2014, ICO International 2014 and ICO exporters 2014 (www.ico.es).

– Centre for Industrial Technological Development (CDTI). It belongs to the Ministry of Industry, Energy and Tourism and works with three different funding instruments: funding of R&D, internationalization of R&D&I and funding of innovative and technology-based companies (www.cdti.es).

– Directorate-General of Industry and Small and Medium-sized Enterprises of the Secretariat of Industry and Small and Medium-sized Enterprises of the Ministry of Industry, Energy and Tourism. It has the denominated channel of the entrepreneur (http://www.ipyme.org), which offers a wide range of support services to entrepreneurs at different stages, decision to undertake, project development and creation of the company. Among them, a search engine of aid and incentives for companies (http://www.ipyme.org/es-ES/BBDD/AyudasIncentivos/Paginas/ListaAyudasIncentivos.aspx?ABIERTA=True&CAUT=11&ADMO=&TITU=&SECT=&SUBS=&VIGE=True&DES=123,171&tipoconsulta=prediseniada), and a dynamic guide (constantly updated by regions or sectors), that includes all aids and incentives for business creation and employment, granted and summoned by the Central Government, Regional Governments, Local Authorities and other public agencies, with deadline open (http://www.ipyme.org/_layouts/ipyme/guiaayudascreacionempreas.aspx).

– Ministry of Employment and Social Security. We highlight the implementation of the Strategy of entrepreneurship and youth employment 2013/2016 (http://www.empleo.gob.es/es/estrategia-empleo-joven/descargas/EEEJ_Documento.pdf) and the Promotion of the Employment Program (bonus program for hiring workers (http://www.empleo.gob.es/es/informacion/incentivos/). On their website, there are 100 employment measures grouped into (1) training and employability, (2) self-employed and entrepreneurs, (3) incentives for hiring, (4) intermediation and (5) other measures (http://www.empleo.gob.es/).

– Superior Council of Chambers of Commerce (www.camaras.org). A wide range of services for entrepreneurs is available on its website, which include:

  • The One stop Business Service (VUE): it supports entrepreneurs by providing integrated services of business processing and advice. It has on-site centers and an online advice service (http://www.ventanillaempresarial.org/).

- INCYDE Foundation (Chamber of Institute for the Creation and Development of Business): its objective is to support the creation and consolidation of businesses through its own methodology and equipment that make it a benchmark for quality (http://www.camaras.org/published/Incyde/tipo_programas.html). The ongoing programs in 2014 are: Entrepreneurs and Creation of Businesses, Support to Self-employed Entrepreneurs, Support to Women Entrepreneurs, Support to the Disabled, Business Creation for Returning Spanish Emigrants, Support to Enterprises for University students, Business Incubators, Sector Strategic Plans, Business Consolidation Programs.
  - European Social Fund (ESF) programs: Among the 2007–2013 programs financed by the ESF and managed by the Chambers, there are three related to entrepreneurship, which are Fostering of Business Spirit, Business Support Program for Women (PAEM) and Entrepreneurs in Trade (http://www.camaras.org/publicado/formacion/paem.html).

– Spanish Confederation of Young Entrepreneurs Associations (CEAJE): the objective is to motivate, advice and channel business initiatives of young Spanish entrepreneurs (www.ceaje.es). The programs that are implemented: (1) Guia2: project aimed at young people under 35 who are abroad, which provides advice and useful information on the labor market and entrepreneurship, in order to facilitate their return and enter the labor market, (2) CEAJE training, (3) and CEAJE and FIJE a new approach: a project for young people, (4) Special Self-employed AJEAI, (5) CEAJE creates AjeImpulsa, platform designed to foster the entrepreneurial process, (6) CEAJE with entrepreneurs, helps to start a project, (7) Imagine it-undertake it, approach of the business world to educational centers, (8) AJE undertakes in Green. Biodiversity Foundation for projects related to the environment, (9) e-GAMES-Undertake through games.

At regional level, in Galicia there are two organizations that offer support to entrepreneurs:

– Galician Institute for Economic Promotion (IGAPE) of the Xunta de Galicia (www.igape.es). It has a search engine for financial aid by Consellerías (http://www.igape.es/es/component/igpbdaxudas/organismos). The current aids are Galicia Emprende (http://www.igape.es/es/base-xeral-de-axudas/ficha/IGAP262).
– Galician Agency for Innovation (GAIN) of the Xunta de Galicia (www.gain.sunta.es).
– Aids to enterprises with technologically-based employment initiative (IEBT): program of entrepreneurial initiatives and employment (I + E + E) of the Ministry of Labor and Welfare of the Xunta de Galicia.

13.4 Conclusions

As we have mentioned, Spain needs entrepreneurial activity for the regeneration of the business sector, generating jobs and achievement of higher levels of innovation and competitiveness, but according to data from Spain GEM report (2013, pp. 64–65), the percentage of potential entrepreneurs experienced a significant drop between 2012 and 2013, from 12.0 % to 9.3 %. The same happened in Galicia passing from 8.96 % in 2011 to 8.13 % in 2012 (Galicia GEM 2012). The study also shows that "*a key element for the development of all entrepreneurial activity is financing. The search for funding, especially for the early stages of the entrepreneurial process, is a task that is not simple. On the one hand, bank financing is not available until business projects achieve enough consolidation, in order to have their own tangible assets which can be offered as guarantee. On the other hand, in the Spanish environment there are still not well-developed alternative capitals markets which channel investment to emerging entrepreneurial projects, once savings or available capitals have been used up by the entrepreneur himself*".

The study found in the White Paper of the entrepreneurial initiative in Spain (2011), states that three factors that most negatively affect entrepreneurial initiative are entrepreneurial culture, entrepreneurship training and access to financing and according to the GEM Galicia (2012) report, financial support, economic climate, education and training. We therefore believe that the implementation of mechanisms by the government to encourage and increase entrepreneurial initiative in autonomous regions, including Galicia is necessary. These mechanisms must be designed to encourage entrepreneurship, entrepreneurial culture and the necessary training among young people by educational institutions from early stages.

On the other hand, many authors agree to consider access to financing as one of the major obstacles to entrepreneurship (Krueger 2000; Liñán and Rodríguez 2005; Urbano 2006; Sánchez et al 2012). This difficulty is aggravated in the case of start-ups, due to their higher risk levels because of the absence of guarantees, among other factors (Hoyos 2013). According to data provided by the Global Entrepreneurship Monitor (GEM) project, in 2013 the most popular external funding source used by Spanish businesses was the 3F's (more than half of business projects of up to 3.5 years), 34.8 % of the projects sought bank financing (loans and credit lines), followed by public aid (18 %) and Business Angels (2.5 %).

One of the main consequences of the economic crisis that began in 2008 in Spain and in which we still continue immersed is that the conditions of credits offered by banks are worse (interest rate, conditions). Therefore, it would be necessary for Governments to favor informal financing like Venture Capital, Business Angels, etc. (Hoyos and Saiz 2010). According to Hoyos (2013, p. 126) "*it is necessary to continue promoting the figure of the private investor or business angels in the entrepreneurial community, enhancing and promoting an explicit recognition of it, as an alternative source of funding for startup projects*". In this sense, with the new Law on Support to Entrepreneurship and Internationalization, the first steps are already being taken, where there are a number of tax advantages for investors who

bring capital into startups. Also, "*the public sector must act as a capitalizing element in promoting venture capital in Spain, adapting formulas implemented successfully in other countries like UK, France and Israel*" Hoyos (2013, p. 129). Spain is already moving in this direction with the new ICO Lines Guarantees SGR 2014 and equity loans from the National Innovation Company (ENISA), the creation of the Alternative Stock Market (MAB) in 2008.

In summary, it is necessary for Spain to favor the access to financing in order to remove the main obstacle to entrepreneurship. According to Hoyos (2013, p. 133) there are several challenges "*development of an offer of specialized capital, with funds and networks of experienced investors in key activity sectors, which perform as catalysts in attracting foreign capital. On the other hand, it is important to develop mechanisms that enable co-investment mechanism which make risk diversification possible, making it easier for business angels to share experiences and invest in several startup projects in a framework of agile, simple and transparent negotiation*".

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Chapter 14
The Effect of Systemic Banking Crises on Entrepreneurship

Jordi Paniagua and Juan Sapena

Abstract Economic crises have mixed effects on entrepreneurship. Through demand shocks, credit constraints, and unemployment, systemic banking crises affect the rate of start-up business creation, although the extent of their impact varies. Consequently, previous studies on the effect of crises on Entrepreneurship are inconclusive. The surge of global demand coupled with low credit availability reduces the prospects for new businesses. On the other hand, job losses caused by an economic crisis might lead many entrepreneurs to undertake new projects. These inconsistent conclusions highlight the need for more studies that explore the effect of systemic banking crises on entrepreneurship. This article presents analysis of a global panel database consisting of data on new business activity and density for 106 countries during 2004–2012. A range of regression techniques yielded robust results that show that systemic banking crises have a consistently negative impact on entrepreneurship.

14.1 Introduction

One of the astonishing consequences of the Great Recession was the rapid deterioration of many economic indicators in relation to global demand. Scholars of the global economic crisis of 2007 have noted that the surge in demand did not fully explain the collapse of other economic activity (Ahn et al. 2011; Gil-Pareja et al. 2013; Paniagua and Sapena 2014a). For example, while the world's gross domestic product (GDP) fell by only 1 % in 2009, international trade volumes dropped by roughly 11 %, foreign direct investment (FDI) by nearly 7 %, and global employment by 33 % (UNCTAD 2013). Moreover, western economies are currently experiencing unprecedented unemployment rates (e.g., Spain 27 %, Portugal 16 %, and Italy 13 %). Entrepreneurial activity, namely the number of new businesses created, is not an exception. Figure 14.1 shows the world's aggregate number of new business in absolute numbers and as a proportion of the population.

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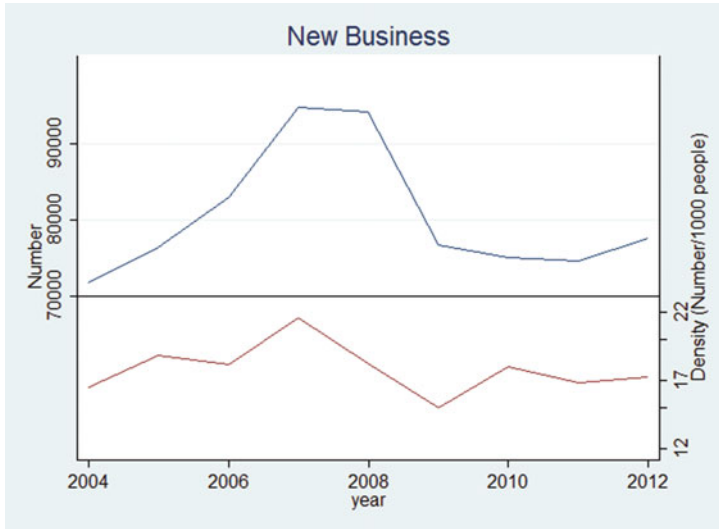
Fig. 14.1 New businesses number and density over time

In 2008, entrepreneurs started roughly 94,000 new businesses. This figure fell to around 76,000 only one year later. Two years after the start of the global crisis, the rate of new business activity suddenly fell by 18 %.

Researchers have explained the puzzling effect of the Great Recession on FDI (Alfaro and Chen 2012; Gil-Pareja et al. 2013), trade (Ahn et al. 2011; Amiti and Weinstein 2011), employment (Paniagua and Sapena 2014a), and firm growth (Aghion et al. 2007) by citing the systemic banking crisis that triggered the Great Recession. Systemic banking crises are characterized by a severe credit drought caused by two factors: financial distress in the banking system and public intervention measures in response to significant bank losses (Laeven and Valencia 2013). Unlike the literature on the effect of credit constraints on entrepreneurship, little research exists on the impact of systemic banking crises on entrepreneurial activity. This study fills this gap.

The relationship between economic crises and business creation is more complex than in other business activities. Credit constraints have a direct effect on the rise and persistence of unemployment (Acemoglu 2001; Blinder and Stiglitz 1983; Dromel et al. 2010). Unemployment, whose effects are almost exclusively negative, has an unequivocal relationship with entrepreneurship. During 2009, at the peak of the crisis, the rate of self-employment in the USA climbed to its highest level in more than a decade (Shane 2011). Recent studies have suggested that higher unemployment rates increase the probability that individuals start businesses (Fairlie 2013). However, scholars have yet to examine the interplay of demand shocks, credit constraints, and unemployment on entrepreneurship on a global scale.

By creating new markets, designing innovative products, and revolutionizing production techniques, entrepreneurs play a fundamental role in economic recovery. Many authors have deemed entrepreneurship a key factor of economic growth due to its effect on innovation, creativity, and wealth creation (Agarwal et al. 2007; Baumol and Strom 2007; Hoselitz 1952; Leibenstein 1968; Wennekers and Thurik 1999). Alfaro et al. (2004) highlighted the importance of financial entrepreneurs in access to credit, the provision of FDI, and stimulating economic growth. Entrepreneurship is therefore a palliative treatment for the causes that worst affect it. Consequently, entrepreneurship promotion is high up on the agendas of policymakers and occupies a central role in the measures that many governments are applying to overcome the recession (Millán et al. 2014; Román et al. 2013; Shane and Venkataraman 2000). Public programs aimed at facilitating nascent firms' access to credit are widespread in the form of direct subsidies (e.g., preferential loans at low interest rates) and indirect support (e.g., loan guarantee programs). Understanding the factors that influence the emergence of new firms helps policymakers determine the best-suited entrepreneurship policies.

The remainder of this chapter is structured as follows. The next section draws on previous research to construct a conceptual model. We then set out the empirical methodology to test our research hypotheses. The results are reported, and, finally, we discuss the conclusions of our study.

14.2   Conceptual Framework

14.2.1   Credit Constraints and Entrepreneurship

Capital is essential for starting a business. Credit constraints thus represent a major obstacle to entrepreneurship. Without the appropriate financial resources, the gap between a business plan and a nascent firm widens. Furthermore, the lack of financial capital hinders innovation (Bughin and Jacques 1994; Kleinknecht 1989). The link between finance–entrepreneurship has garnered received attention from academics since the seminal dispute between Frank Knight and Joseph Schumpeter over the nature of entrepreneurship (Evans and Jovanovic 1989). Knight (1921) argued that risk bearing is inherent to entrepreneurship. During the Great Depression of 1927, entrepreneurs were faced with little capital availability, so Knight claimed that entrepreneurs must finance themselves and bear the risk of failure. Schumpeter (1934), on the hand, believed that capital markets should bear the financial risks for the entrepreneur, whose role is to identify business opportunities. Many empirical studies have backed the Schumpeterian view on capital markets. Evans and Jovanovic (1989) are generally credited as the first scholars to show that liquidity constraints tend to exclude entrepreneurs with insufficient funds at their disposal. Holtz-Eakin et al. (1994) examined survival rates of entrepreneurial enterprises and their growth. The authors concluded that liquidity constraints

exert a noticeable influence on the viability of entrepreneurial enterprises. Furthermore, during periods of financial turmoil, entrepreneurs with substantial personal financial resources will be the most successful. Hurst and Lusardi (2004) nevertheless found no evidence that personal wealth matters more for businesses requiring higher initial capital. Black and Strahan (2002) showed that bank credit availability greatly influences entrepreneurial projects. They found that the rate of new firm incorporations increases following deregulation of banking restrictions. The authors also found that the rate of new business increases as the share of small banks decreases, suggesting that the diversification benefits of banking size are positive for entrepreneurial activity. Carpenter and Petersen (2002) posited that small enterprises without access to internal financial resources would be affected the most by financial constraints. In a study that analysed harmonized firm-level data for 16 industrialized and emerging economies Beck and Demirguc-Kunt (2006), confirmed that access to finance matters most for the entry of small firms and for ventures in sectors that are more dependent upon external finance. Parker and van Praag (2006) quantified the effect of high capital cost on entrepreneurial performance. Their estimates indicate that a 1 % point relaxation of capital constraints increases entrepreneurs' gross business income by an average of 3.9 %. We therefore propose the following hypothesis:

H1: Credit constraints produce a negative impact on entrepreneurial activity (new firm incorporations).

14.2.2   Systemic Banking Crises

The recent global financial crisis has given rise to the largest number of simultaneous banking crises in advanced economies since the Great Depression. Banking crises represent the most disruptive source of credit constraints. Kroszner et al. (2007) found that sectors that are highly dependent on external finance tend to experience a substantially greater economic contraction during a banking crisis. Several authors have shown that domestic credit, whose expansion is associated with situations of financial distress, is severely reduced during and after banking crises (Gourinchas and Obstfeld 2012; Schularick and Taylor 2012).

Recent research has shown that the most severe form of credit constraints arises in systemic banking crises (Laeven 2011; Laeven and Valencia 2013). According to Laeven and Valencia (2013) systemic banking crises share two distinctive traits:

1. Significant signs of financial distress in the banking system;
2. Significant banking policy intervention measures (e.g., liquidity support, guarantees on liabilities restructuring costs, asset purchases, and nationalizations).

The following table summarizes the most recent episodes of systemic banking crises (Table 14.1):

Table 14.1 Systemic banking crises

Country	Year	Country	Year	Country	Year
Austria	2008	Latvia	2008	UK	2007–2008
Belgium-luxembourg	2008	Mongolia	2008–2009	USA	2007–2008
Denmark	2008–2009	Netherlands	2008	Kazakhstan	2008–2010
Germany	2008–2009	Nigeria	2009–2010	Ukraine	2008–2009
Greece	2008	Spain	2008–2011		

Source: Laeven and Valencia (2013)

During systemic banking crises, most public efforts and resources are devoted to sustaining the financial system. Consequently, less budget and public efforts focus on promoting new business activities. Several authors have found that public policies are essential for promoting entrepreneurial activity (Holtz-Eakin 2000; Lelarge et al. 2010; Millán et al. 2014). This supports our next research hypotheses:

H2: Systemic banking crises have a negative impact on entrepreneurial activity (new firm incorporations).

14.2.3   Market Conditions

Domestic market conditions (e.g., domestic demand, regulations, administrative costs, labour demand) have a well-documented effect on entrepreneurial activity. Moreover, institutions matter for new business activity. Acemoglu and Johnson (2005) showed that countries that profit from higher institutional quality experience greater economic welfare. Djankov et al. (2002) stressed the link between the regulatory start-up cost and entrepreneurial activity. The authors found that administrative costs (i.e., the number of procedures), official time, and official cost that a start-up must bear before it can operate legally negatively affect entrepreneurial activity. Van Stel et al. (2007), however, uncovered evidence that links labour market regulations and minimum capital requirements. Paniagua and Sapena (2014b) asserted that countries with higher democratic and legal standards attract higher quantities of new foreign firms. Our third research hypothesis is hence:

H3: Market conditions and regulations affect entrepreneurial activity (new firm incorporations).

The literature on the issue of unemployment, economic crises, and entrepreneurship is inconsistent. Scholars have highlighted the negative effect of credit constraints on employment and labour demand (Acemoglu 2001; Dromel et al. 2010). Despite this, empirical research has also shown that when unemployment is high, entrepreneurial activity actually tends to increase (Fairlie 2013; Parker 2004; Shane 2011; Thurik et al. 2008). Andersson and Wadensjö (2007) refined this result, stating that only under limited conditions will unemployed individuals succeed in new business endeavours. Bianchi (2010) extended the

relationship between financial development and entrepreneurship to the allocation of talent, which results in greater output, job creation, and social mobility. Recent empirical evidence from China has confirmed the roots of financial constraints of job mobility and entrepreneurship (Wang 2012). Consequently, we formulate our last research hypothesis thus:

H4: Unemployment produces a positive impact on entrepreneurial activity (new firm incorporations).

14.3 Sample and Estimation Strategy

Date came from a sample of 106 countries for the period 2004–2012. To isolate migration and demographic effects on entrepreneurial activity, we took the dependent variable to be the annual density of new businesses registered (new businesses per 10,000 inhabitants) in each country. The independent variables included GDP per capita (in constant 2005 US$), total unemployment, (as a percentage of the total labour force), strength of legal rights index (0 = weak to 10 = strong), cost of business start-up procedures (% of gross national income per capita), number of procedures to start a business, and lending interest rate (%). All data came from the World Bank (2013). To capture the effect of systemic banking crises, we adopted Gil-Pareja's et al. (2013) approach, introducing a dummy variable. This dummy variable took the value 1 for country–year pairs with credit constraints during the Great Recession. Additionally, to control for any unobserved variables, our empirical specification included fixed year and country dummies. Table 14.2 shows the main descriptive statistics of the data used.

We used three different regression models to test the validity of our research hypotheses. We employed log-linear Ordinary Least Squares (OLS) as a benchmark estimation method. To control for non-linear relationship and heteroskadicity, we used the Poisson pseudo maximum likelihood (PPML) estimation (Silva and Tenreyro 2010, 2011). To control for endogeneity, we applied the generalized method of moments (GMM) estimator using the lagged difference of the dependent

Table 14.2 Descriptive statistics

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
Business density	804	3.87	7.3	0.002	93.7
GDP per capita	804	12804.59	16850.2	147.1	87716.7
Crisis	804	0.01	0.13	0	1
Procedures	804	7.9	3.47	1	28
Start-up costs	804	37.14	97.12	0	1491.6
Rights	804	5.82	2.45	0	10
Unemployment	804	8.56	5.41	0.3	37.6
Interest	604	11.9	7.09	0.5	55.38

variable as the instrument. GMM is also a consistent estimator for linear dynamic panel-data models (Arellano and Bond 1991; Blundell and Bond 2000).

14.4   Results and Discussion

The results in Table 14.3 show that our regression methodology has a good fit to the data and explains more than 90 % of the variance of new business density. The coefficients generally have the sign predicted by our research hypotheses. Columns 1 and 2 contain the OLS regression results, columns 3 and 4 report the PMML, and columns 5 and 6 show the GMM estimation results. The interest rate increases during systemic banking crises (Laeven and Valencia 2013). Therefore, odd columns show the results with only the banking crisis dummy and even columns report the results with the measure of the lending interest rate. The effect of systemic banking crises is consistently negative in all specifications.

The baseline results in columns 1 and 2 are coherent with all research hypotheses except H1. With a log-linear specification, lending interest rates have no effect on entrepreneurial activity. Systemic banking crises cause the new firm density (calculated by $e^{0.04}$ - 1) to drop by approximately 10 %. The elasticity of the GDP per capita is greater than 1, meaning that increasing wealth boosts entrepreneurship. Removing any single administrative procedure required to start a business would increase entrepreneurial activity by 31 % on average. The new business density–procedures elasticity is -0.11 (calculated by -0.031×3.47). This means that halving administrative procedures would increase entrepreneurial activity by 5 % on average. Increasing start-up costs by 1 % reduces new business density by 0.03 on average. Countries with more stringent legal rights have greater new business densities. As expected from H4, employment has a positive effect on entrepreneurship. For every additional percentage point of unemployment, new business density increases by 0.11 % on average (calculated by 0.0134×8.56).

The PPML estimates of the entrepreneurial equation (columns 3 and 4) reveal that the relationship between the interest rate and new business density is non-linear. The Poisson estimator of the interest rate lends support to H1. Relaxing capital lending costs by 1 percentage point increases entrepreneurial activity by 0.12 % (calculated by 0.01×11.7). However, GDP per capita and unemployment have no significant effect on entrepreneurial activity under this estimation method.

The GMM results of the last two columns of Table 14.3 show that, after controlling for endogeneity, most of the new business activity is explained by its past values. No other variables have a significant effect on entrepreneurial activity with the exception of systemic banking crises. Banking crises have a robust negative impact on entrepreneurial activity.

Table 14.3 Estimation results

	(1) OLS	(2) OLS	(3) PPML	(4) PPML	(4) GMM	(6) GMM
Interest		0.003		-0.010^{***}		0.007
H1		(0.002)		(0.002)		(0.004)
Crisis dummy	-0.104^{**}		-0.0836^{**}		-0.148^{***}	
H2	(0.05)		(0.04)		(0.0457)	
Ln(GDP per capita)	1.326^{***}	1.335^{***}	0.310	-0.219	0.0640	0.0630
H3	(0.16)	(0.27)	(0.32)	(0.47)	(0.06)	(0.05)
Procedures	-0.031^{***}	-0.043^{***}	-0.0545^{***}	-0.0472^{***}	0.0324	-0.00165
H3	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Start-up costs	-0.0003^{***}	-0.003^{***}	-0.000733^{**}	-0.00682^{***}	-0.000377	-0.00165
H3	(0.0001)	(0.0008)	(0.0002)	(0.001)	(0.0002)	(0.001)
Legal rights	0.0457^{**}	0.0128	0.0734^{***}	0.0295	0.0164	0.0249
H3	(0.01)	(0.01)	(0.01)	(0.02)	(0.03)	(0.04)
Unemployment	0.0134^{*}	0.0170^{**}	-0.00851	-0.0117	-0.00468	-0.00597
H4	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.009)
BussDens(lag)					0.913^{***}	0.856^{***}
					(0.06)	(0.06)
Observations	804	620	804	620	710	548
R^2	0.980	0.981	0.941	0.942	–	–

Notes: Standard errors in parentheses
Fixed country and year dummies
$^*p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$

14.4.1 Sensitivity Analysis: Quantile Regression

It plausible that entrepreneurial activity varies with different levels of business density. Several authors have suggested that agglomeration and spillovers are positive external influences (Acs and Varga 2005; Acs et al. 2009; Audretsch and Lehmann 2005). Hence, mean estimations of the entrepreneurial equation may be biased towards higher levels of business density. An analysis of our data yielded a skewness of 5.78 and a kurtosis of 49.42.[1] Therefore, we performed a robustness check of our results using a quantile regression. Quantile regression is used to analyse results of a skewed distribution such as that of salaries (Buchinsky 1994), portfolio returns (Yu et al. 2003), international trade (Dufrénot et al. 2010; Fidrmuc 2009; Figueiredo et al. 2014a), and FDI (Figueiredo et al. 2014b). With this estimation method, we inspected the effect of the dependent variables on the different levels of entrepreneurial activity.

The quantile regression results in Table 14.4 show that the effect of systemic banking crises is greater at higher levels of activity. Systemic banking crises tend to occur in developed economies, whose rate of entrepreneurial activity is generally high hence the negative effect observed in the upper quantiles. These economies, however, require a lower number of procedures to start businesses. The effect of procedures is therefore larger in the lower quantiles. Figure 14.2 plots the effect of each variable across quantiles.

Table 14.4 Quantile regression

	(1)	(2)	(3)	(4)	(5)
	Q(0.1)	Q(0.25)	Q(0.50)	Q(0.75)	Q(0.90)
Crisis dummy	0.00864	-0.0216	-0.340	-0.459	-0.752^{***}
	(0.37)	(0.26)	(0.25)	(0.40)	(0.20)
Ln(GDP per capita)	0.651^{***}	0.486^{***}	0.476^{***}	0.532^{***}	0.617^{***}
	(0.05)	(0.02)	(0.02)	(0.03)	(0.02)
Procedures	-0.101^{***}	-0.0875^{***}	-0.0828^{***}	-0.0354^{*}	-0.0291^{**}
	(0.02)	(0.01)	(0.013)	(0.02)	(0.01)
Start-up costs	-0.00194^{***}	-0.00535^{***}	-0.00322^{***}	-0.000861	-0.00106
	(0.0005)	(0.0003)	(0.0004)	(0.0008)	(0.0006)
Legal rights	0.105^{***}	0.0798^{***}	0.130^{***}	0.125^{***}	0.110^{***}
	(0.02)	(0.0148)	(0.0173)	(0.0274)	(0.01)
Unemployment	0.0626^{***}	0.0400^{***}	0.0282^{***}	0.0367^{***}	0.0211^{***}
	(0.01)	(0.007)	(0.007)	(0.01)	(0.005)
Observations	804	804	804	804	804
R2					

Standard errors in parentheses
*p < 0.10; **p < 0.05; ***p < 0.01

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[1] A normal distribution would have a skewness of 0 and a kurtosis of 3.
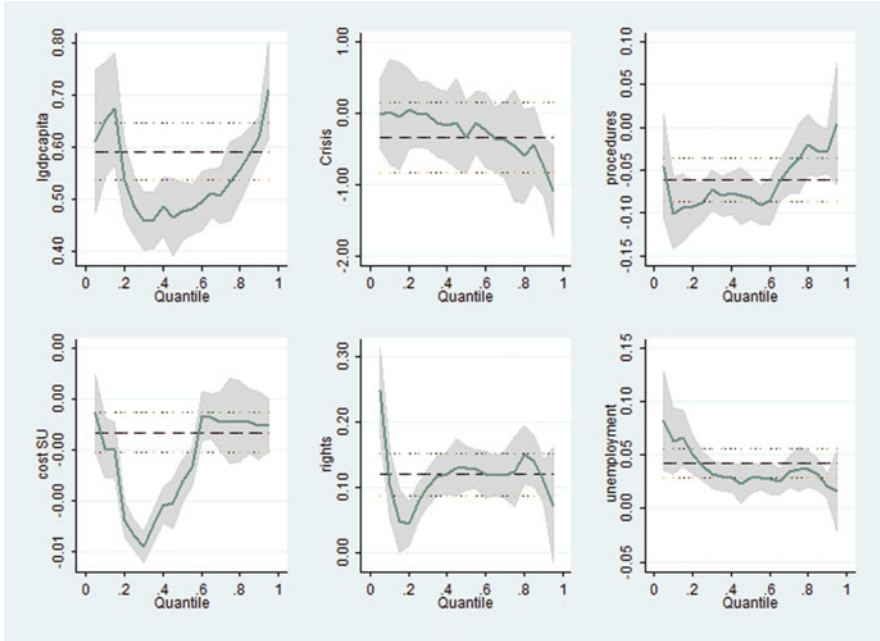
Fig. 14.2 Coefficient variation across quantiles

14.5 Conclusions

Our study yields several contributions to the literature on entrepreneurship and finance. Primarily, this research presents a novel analysis of the varying influence of systemic banking crises on the rate of creation of new business endeavours. The results of this research suggest that systemic banking crises have a deep impact in entrepreneurial activity. This issue is relevant since significant efforts to combat banking crises centre on preventing bank defaults. However, the stringent credit conditions established by affected banks hinder many nascent entrepreneurs.

Both entrepreneurs and policymakers can profit from the lessons learned from this study. The methodology offers practitioners a comprehensive approach to identifying the determinants of new business opportunities. Our results therefore help reduce the intrinsic uncertainty of entrepreneurship. This study provides useful insight for policymakers on how to make best use of business regulations to foster nascent firms. Public officials can quantify the impact of new regulations accurately with the empirical methodology presented in this research.

The limitations of this study present opportunities for future research. The geographical scope, for example, is broad and covers several stages of economic development. New studies could overcome this limitation by focusing the analysis on a restricted group of countries. A further limitation is that our study does not

examine contingent factors such as sectors or industries. The application of our model on disaggregated industries might refine the understanding of entrepreneurship.

Finally, the main contribution of this research is to examine the determinants of entrepreneurial activity with a focus on banking crises and credit constraints. The results in this research may nevertheless be generalizable to small businesses. Future studies could investigate this by capturing the effect of systemic banking crises on small and medium-sized enterprises.

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Chapter 15
Bank Financing Constraints: The Effects of Start-Up Characteristics

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Abstract The paper aims to shed new light on start-up financing and the existence of credit constraints that may negatively affect their activity. Although Venture Capital (VC) best suits the specific particularities of these projects, VC markets in Spain are actually underdeveloped, so that banks constitute by far the most important source of outside financing to start-ups. However, traditional collateral-based lending proves inadequate in start-up stages, lacking professionals and risk assessment mechanisms adapted to the nature of these ventures. From a sample of more than 800 start-ups in Spain under the Global Entrepreneurship Monitor (GEM) methodology, this work seeks to establish whether the tightening of bank lending is associated with aspects to do with certain firm-level characteristics or with the competitive profile of the founder team. The results obtained demonstrate that the entrepreneur's income level represents the variable that most explains access to credit. In contrast, New Technology-Based Firms or companies devoted to exports are particularly subject to bank credit constraint.

15.1 Introduction

The decision of a suitable way of financing is an important point for the entrepreneurs. This decision has a great influence in the first steps of the project and also in firm performance. Over the last few years, academics and policy makers have become increasingly interested in the start-up financing process (Minola et al. 2008).

Previous literature and experience shows that there's a lack of serious analysis of the characteristics that banks consider for giving or denying a loan in the particular case of the star-up segment. In this paper, we focus attention on bank loans obtained by new firms at start-up time. Very little empirical knowledge exists about the characteristics of individuals who start a business, but they are restricted in doing so

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because of credit rationing by banks (Blumberg and Letterie 2008). The objective is to discover whether bank credit constraint is significantly related with certain characteristics of start-up firms and with the profile of the entrepreneurs. The results of this analysis will enable us to know whether credit rationing is particularly concentrated around a particular start-up or owner typology.

15.2   Theoretical Framework

Some studies conclude that business start-ups are subject to a financing gap (Cassar 2004; Denis 2004). This arises as a consequence of the very nature of these projects. Start-ups lack a history or prior reputation and there are no referents for their previous financial track record. For these reasons, small new firms have serious difficulties in convincingly showing the commercial feasibility of the projects they propose.

In such circumstances, financial institutions possess no historical data on firms, which eventually provokes an increase in information asymmetries in the form of adverse selection and moral hazard (Akerlof 1970; Stiglitz and Weiss 1981; de Meza and Webb 1987). Problems of information opacity in financial markets (Myers 1984; Berger and Udell 1998) can be mitigated by offering greater guarantees or attempting to justify a good track record in the eyes of credit institutions. But this does not prove possible in the case of start-ups (Cassar 2004), especially when it comes to small innovators or New Technology-Based Firms (NTBFs), which are projects whose investment in intangible assets makes it difficult to evaluate the expected value of the firm (Carpenter and Petersen 2002; Ueda 2004; Colombo and Grilli 2007). The combination of high tech risk, information asymmetries and low collateral may worsen capital imperfections (Carpenter and Petersen 2002), creating a particular funding gap.

The literature on entrepreneurial finance (Denis 2004) argues that debt is an unsuitable source of financing for start-ups, especially for NTBFs. Cassar (2004), for example, finds that non-bank financing plays a more important role in the capital structure of start-ups. The nature and profile of these projects mean that there must be investors willing to provide capital and take on that level of risk. Consequently, Venture Capital financing (VC) appears to be the best option (Cosh et al. 2009; Nosfinger and Wang 2011). Venture Capitalists have greater experience in project assessment, manage future uncertainty more effectively and get actively involved in project follow-up once they have decided to invest (post-investment control). In short, they develop superior capabilities in coping with adverse selection and moral hazard problems (Gompers and Lerner 2001; Colombo and Grilli 2006).

In spite of their importance, it is true that VC markets have traditionally been less developed in Europe than in the United States. Additionally, a tendency shows that VC funds have gradually modulated their investment portfolio towards the later stages. In these circumstances, bank loans are still the most important source of outside financing (Kutsuna and Nobuyuki 2004; Colombo and Grilli 2006). Spain,

in particular, is one of the most bank-based economies in the European Union (EU), and this causes SMEs, including start-ups, to turn to bank financing as the only route available to them once the founder's personal capital and the 3Fs –Family Friends & Fools- have been exhausted.

The recent literature refers to signals that the entrepreneur can send to reduce information asymmetries (Minola and Giorgino 2008). The quality of these signals remains a crucial step in reducing financial constraints (Mahagaonkar 2010), because they reflect the characteristics of the firm. However, little is known of the financial institutions' capacity for knowing how to capture these signals. Guidici and Paleari (2000, p. 40) talk in terms of the "poor ability to evaluate the business on the part of banks." Blumberg and Letterie (2008, p. 191) argue that "the reluctance of banks to provide credit for business start-ups is influenced by the difficulties to assess a new business." Werner (2011) argues that most of the instruments that reveal hidden information are unsuitable for start-ups, since both the business idea and the company are totally new and there is no reputation or experience to build on.

15.3 Data and Methodology

The data used correspond to the information gathered by the Global Entrepreneurship Monitor (GEM) project concerning the adult population in Spain. The questionnaire employed is the one used in the methodology pursued by the GEM project (Reynolds et al. 2005), which is common to all the countries and regions where it is implemented.

The analysis unit used in our study corresponds to entrepreneurial projects that are at the start-up stage –under 42 months of activity. It is known as the Total Entrepreneurial Activity Index (TEA index), and is calculated from the percentage of adults (between 18 and 64) involved in a business creation process. In total, a final sample is obtained for the year 2010 of 874 business projects at the start-up stage, defined in the sense that they have been functioning for under 3.5 years. From the total of these new ventures, at some point since their creation 21.9 % had been refused the granting of loans, credits or other bank financing alternatives.

15.4 Variables and Hypothesis

This work considers the possibility of examining whether the tightening of bank lending is closely linked with variables that determine both the start-up characteristics (technological intensity; growth potential; innovation level) and entrepreneur-level characteristics (age, education or experience) (see Table 15.1).

Table 15.1 Nature of the discriminant and model dependent variables

Discriminant variables			
Thematic block	Variable labels	Definition and values	Sign
Entrepreneur or founder team profile	UNIV EDUC_	Value 1 if the entrepreneur has received university education	H1a (−)
		Value 0 otherwise	
	START_SKILL	Value 1 if the entrepreneur considers s/he has the necessary skills and knowledge related to start-up creation	H1b (−)
		Value 0 otherwise	
	EXP_ SECTOR	Number of years of previous experience gained by the founders in the start-up sector	H2a (−)
	ENTSHIP_EXP	Number of start-ups that have been launched in the past by the different members that make up the project promoter team	H2b (−)
	INCOME	Average annual income received by the entrepreneur (in euros)	H3 (−)
		Value 1 = Up to 10,000 euros	
		Value 2 = From 10,001 to 20,000 euros	
		Value 3 = From 20,001 to 30,000 euros	
		Value 4 = From 30,001 to 40,000 euros	
		Value 5 = From 40,001 to 60,000 euros	
		Value 6 = From 60,001 to 100,000 euros	
		Value 7 = Over 100,000 euros	
	NUM_ASSOCIATES	Logarithm of the number of founding associates in the start-up firm (founder team members)	H4 (−)
Business initiative profile	PROD_INNOV	Value 1 if the entrepreneur perceives that the product or service is new for all their customers (completely new)	H5a (+)
		Value 0 otherwise	
	TECH_ SECTOR	Value 2 if it belongs to a high-tech sector	H5b (+)
		Value 1 if it belongs to a medium-high tech sector	
		Value 0 otherwise	
	EXP_GROWTH	Number of employees that the firm expects to create over the coming 5 years	H6 (−)
	EXPORT_	Value 3 if exports represent over 75 % of its turnover	H7 (−)
		Value 2 if exports represent between 25 % and 75 % of its turnover	
		Value 1 if exports represent between 1 % and 25 % of its turnover	
		Value 0 if exports represent 0 % of its turnover	
Dependent variable			
Credit constraint	CREDIT_CONST	Value 1 if the project has recently been refused the granting of loans, credits or other financial products	
		Value 0 otherwise	

15.4.1 Dependent Variable

Measurement of credit constraint has been carried out in several ways. Previous research has tended to use indirect indicators of wealth, inheritance or windfall gains to test the existence of capital constraints on self-employment (Evans and Jovanovic 1989; Holtz-Eakin et al. 1994; Lindh and Ohlsson 1996). They conclude that the existence of a positive correlation between founder wealth and entrepreneurship performance is likely to indicate capital constraints. The drawback of this approach is basically that they do not reveal whether the entrepreneurs were able to obtain external capital if needed (Werner 2011). In this connection, Parker and van Praag (2006) relate the total amount of seed capital used with the amount of capital required, as a measure of capital constraints.

Other researchers have chosen to explain credit constraint by directly asking the entrepreneur about this question (Praag 2003; Blumberg and Letterie 2008; Werner 2011). In this work we follow such an approach and a dichotomous variable is used depending on whether the entrepreneur replies affirmatively when asked if at any time since the firm was set up she/he had been refused a request for loans, credits or other financial banking products.

15.4.2 Credit Rationing and Entrepreneur Profile

Human capital has been identified as a crucial aspect of business knowledge that proves to be of particular importance to obtain different resources, and this includes those of a financial nature (Brush et al. 2001). Cassar (2004) establishes that, where start-up human capital is concerned, the indicators for this dimension are basically to be found in the entrepreneur's education, experience and gender. The better the human capital, the greater the firm viability of the start-up so, credit rationing should diminish (Bates 1997). Cressy (1996), for example, argues that the entrepreneurs with the highest levels of human capital should be the best equipped to achieve financing. Oakey (1984) finds that human capital helps entrepreneurs, making them better prepared for negotiation with financial backers.

Various researches have analysed the influence that the educational level of the entrepreneur bears on access to bank finance. However, most studies report no significant effects of variables related to education on denial rates (Blanchflower and Oswald 1998). In spite of this, Coleman and Cohn (2000) find some evidence of education being positively related to external loans. Magri (2009) obtain evidence that the likelihood of receiving a bank loan increases the older the entrepreneur is, the bigger the project and the higher the educational level of the owners. Parker and van Praag (2006) show that greater human capital decreases borrowing constraints. Werner (2011) argues that screening the educational history of the founder can help creditors to solve or reduce information asymmetries.

Stemming from this, the first two hypotheses (H1a y H1b) of this research are formulated:

H1a: The entrepreneur's educational level is negatively related with credit constraint

H1b: Having the necessary entrepreneurial skills and knowledge is negatively related with credit constraint

Meanwhile, working experience gained by founders before the firm´s foundation, represents another useful signal for banks when it comes to distinguishing between start-up projects. It is particularly useful if this experience consists of having created a firm in the past and is related to the same sector. In the specific case of VC, several recent studies have analysed the positive effect exerted by human capital and the prior experience when investors join the shareholding structure of new start-ups (Bertoni et al. 2011; Colombo and Grilli 2009).

In this work, we analyse whether the element of experience also exercises a positive effect on being or not being subject to credit restriction. Hypotheses *2a* and *2b* (*H2a* and *H2b*) are formulated as follows:

H2a: Previous experience in the sector (in years) accumulated by the members of the founder team are negatively related with credit constraint

H2b: The entrepreneurial team's business ownership experience is negatively related with credit constraint

For banks, the real cover that the entrepreneur can provide is fundamental, as is the case with real estate or reusable assets (Blumberg and Letterie 2008). On the other hand, the more a business owner will commit his or her own resources to the venture, the better a bank should be convinced that they are investing in a serious idea. Moreover, the income that a business starter earned previously is an indicator which signals earning capacity after an eventual failure (Blumberg and Letterie 2008). In this work, we use the entrepreneur's annual income level as another signal that banks can pick up on as a guarantee or endorsement of the borrower's creditworthiness. The third hypothesis of this investigation is formulated accordingly (H3):

H3: The average annual income of the entrepreneur is negatively related with credit constraint

New start-up entrepreneurs can go for sharing ownership with other associates, which makes it possible to reduce risk and face future strategic challenges with greater security. The existence of an entrepreneurial team provides the firm with complementarity advantages due to having a broader knowledge base at its disposal. To cope with everyday challenges, new firms require a broad set of skills, aptitudes and insights which are rarely encountered in a single person. Werner (2011) expects "multiple ownership" to facilitate access to bank loans. In this regard, when compared with entrepreneurs who tackle the launching of a project on their own, the existence of a promoter team may send the financial institutions a

stronger signal and, therefore, greater support for the viability of the project. *Hypothesis 4* (H4) runs as follows:

H4: The size of the founder team is negatively related with credit constraint

15.4.3   Credit Constraint and Start-Up Characteristics

Taken together, uncertainty, knowledge asymmetries and the nature of investments in intangible assets make it difficult to evaluate the expected value of an innovative firm, especially of an innovative nascent firm (Mahagaonkar 2010). Several empirical studies confirm that New Technology Based-Firms (NTBFs) undergo severe credit rationing (Oakey 1995; Westhead and Storey 1997; Giudici and Paleari 2000), and a negative association is established between the technological intensity of the sector and its firms' degree of leverage (Schultz 2011).

This work sets out to verify the degree to which innovation (newness of the product/service offered) and/or membership of a high tech sector has the capacity to significantly influence the proclivity to be affected by credit constraint. Freel (2007), drawing upon a sample of 256 small firms, suggest that the most innovative firms are less successful in loan markets. According to our hypothesis, innovation and technology are hard to evaluate (Hogan and Hutson 2005; Backes-Gellner and Werner 2007) and are based on intangible assets, directed at new highly specialised markets, with scant possibilities of recovery in case of sale (Egeln et al. 1997). The foregoing only increases risk, information asymmetries and the uncertainty perceived by banks and other credit institutions. Hypotheses *5a* and *5b* are specified below:

H5a: Innovation-based start-ups are positively related with bank credit constraint
H5b: Technology-based start-ups are positively related with bank credit constraint

Start-up growth intentions and the use of bank finance is a binomial that has already been examined in the specialised literature (Chittenden et al. 1996; Michaelas et al. 1999; Cassar 2004). Cassar (2004), for example, finds that start-ups with an intention to grow appear to be more likely to use bank financing. Following Gartner et al. (2009), these expectations directly influence the way the entrepreneur tackles the search process for financing sources during the start-up stage. In this regard, this work considers the hypothesis that credit restriction is related with the entrepreneur's expectations of growth and the future development of the project.

H6: Start-up growth intentions (over 5 years) are subject to less credit rationing

Nowadays, it is easy to find firms established not just through interaction with their natural market, but also with external markets. They are known as "born-global" firms (Moen 2002). From the perspective of access to financial resources, early internationalisation may involve greater risk (exchange rate, greater

uncertainty, etc.) but it can at the same time be conceived as a useful signal which lenders utilise to identify the potential of a start-up project. Beck et al. (2003) detect a positive relation between exporting and access to bank finance. Hypothesis 7 (H7) of this work is expressed as follows:

H7: Early internationalizing firms are subject to less credit constraint

15.5 Statistical Method

We use the technique of discriminant analysis to verify the hypotheses under consideration. The empirical model we wish to estimate, in accordance with the whole set of previously defined discriminant variables, runs as follows:

$$
\begin{aligned}
CREDIT\_CONSTRAINT = {} & \alpha + \beta_1 UNIV\_EDUC + \beta_2 STARTSKILL \\
& + \beta_3 EXP\_SECTOR + \beta_4 ENTSHIP\_EXP \\
& + \beta_5 INCOME + \beta_6 NUM\_ASSOCIATES \\
& + \delta_1 PROD\_INNOV + \delta_2 TECHSECTOR \\
& + \delta_3 EXP\_GROWTH + \delta_5 EXPORT
\end{aligned}
$$

In this work, we have based our approach on the discriminant method that introduces the totality of the independent variables simultaneously in the model. Once the function is obtained, it is necessary to globally assess its discriminant capacity (canonic correlation and test based on *Wilks' lambda*). Lastly, it is necessary to validate the predictive capacity of the discriminant function (*classification matrix* or *confusion matrix*).

15.6 Results

First of all, the procedure is to examine the discriminant capacity of the function created via the coefficients of independent variables. The value presented by the canonic correlation is not high (0.228), so, a priori, it seems that the function does not respond very satisfactorily to the proposal to discriminate between the groups formed. In the same sense, Wilks' lambda statistic presents a value of 0.948 (close to one), which means the groups might not be sufficiently differentiated. Even so, this statistic (transformed into Barlett's chi-square value) proves significant (sig. 0,009), so it is possible to reject the hypothesis that the multivariate means of both groups (credit constraint or not) are equal.

Secondly, the descriptive statistics for the discriminant variables in the two groups of classification are set out (Table 15.2) along with the t-tests for equality of means (Table 15.3).

Table 15.2 Differences of credit constraint determinants in start-up firms

	Credit constraint (n = 96)			No credit constraint (n = 349)		
	Mean	St. dev.	Sig.	Mean	St. dev.	Sig.
Entrepreneur profile						
UNIV_EDUC	0.34	(0.47)		0.40	(0.49)	
START_SKILL	0.88	(0.32)	**	0.95	(0.23)	**
SECTOR_EXP	15.54	(31.47)		12.35	(15.32)	
ENTSHIP_EXP	0.73	(1.16)		0.99	(8.26)	
INCOME	2.84	(1.17)	***	3.27	(1.53)	***
NUM_ASSOCIATES	0.18	(0.23)	*	0.14	(0.21)	*
Characteristics of the start-up						
PROD_INNOV	0.058	(0.23)		0.11	(0.31)	
TECH_ SECTOR	0.17	(0.41)	**	0.09	(0.29)	**
EXP_GROWTH	4.05	(8.28)		4.21	(35.76)	
EXPORT_	0.52	(0.81)	**	0.37	(0.64)	**

***Significant at level $p < =0.01$; **Significant at level $p < =0.05$; *Significant at level $p < =0.1$

Table 15.3 Significant discriminant variables that determine the constraint or refusal of bank financing in start-up firms

	Wilks' lambda	F-value	gl1	gl2	Sig.
Entrepreneur profile					
UNIV_EDUC	0.997	1.235	1	445	0.267
START_SKILL	0.989	4.804	1	445	0.029
SECTOR_EXP	0.996	1.938	1	445	0.165
ENTSHIP_EXP	1.000	0.096	1	445	0.757
INCOME	0.986	6.520	1	445	0.011
NUM_ASSOCIATES	0.993	3.133	1	445	0.077
Characteristics of the start-up					
PROD_INNOV	0.995	2.049	1	445	0.153
TECH_ SECTOR	0.990	4.258	1	445	0.029
EXP_GROWTH	1.000	0.002	1	445	0.965
EXPORT_	0.992	3.606	1	445	0.048

With regard to the *entrepreneur profile*, the results confirm that being, or not being subject to credit rationing, is significantly related with the variables for income level (INCOME), number of associates (NUM_ASSOCIATES) and possessing or not the necessary knowledge and skills related to entrepreneurship (START_SKILL). The relation is also significant in agreement with the sign predicted in two of our hypotheses. So, entrepreneurs subject to credit constraint display lower levels of average annual income (confirmation of H3) and say that they possess a lower degree of the knowledge and competencies required to launch a start-up (confirmation of H1b).

Table 15.4 Classification
results: confusion matrix

		Predicted membership group	
Credit restriction		Yes (%)	No (%)
Original	**Yes (%)**	53.9 %	46.1 %
	No (%)	33.5 %	66.5 %
	% cases correctly classified		**63.8 %**

However, when we turn to the number of associates that form part of the founder team (NUM_ASSOCIATES), in spite of significantly influencing the dependent variable, it has the opposite sign from that predicted. This may be due to the fact that a dispersed shareholder group may also be the source of dissidence and disputes among its associates. So, while a founder team can offer greater cover than a single entrepreneur, it is foreseeable that an excessive number of founder members will give rise to a somewhat unconcentrated shareholder structure, thereby increasing the risk of future discrepancies among its members.

By contrast, significant differences are not observed for the variables referring to educational level (UNIV_EDUC) and accumulated experience (SECTOR_EXP/ ENTSHIP_EXP). Accordingly, hypotheses 1a, 2a and 2b in this study would not be verified.

With regard to the start-up level-*characteristics*, we observe that the technological intensity (TECH_ SECTOR) is positively related with bank credit rationing. In addition, this is the second variable that, along with income level (INCOME), exerts the greatest weight in discrimination between groups. Consequently, high-tech business projects would be more sharply prone to credit constraint, a result that supports what has been established in the theoretical literature and enables confirmation of hypothesis 5b.

The project's export intensity (EXPORT_) also significantly influences the dependent variable but with the opposite sign to that predicted (see hypothesis 7). From this result, it may be interpreted that banks give a higher assessment rating to the greater risk entailed in a project with export capacity (for example, exchange rate and country risk) than to the positive signals we might associate with a start-up of these characteristics (greater growth potential, greater feasibility of its business strategy, etc.).

Lastly, from an examination of the classification matrix (Table 15.4) the explanatory power of the model can be said to be acceptable. Concretely, the function correctly classifies 63.8 % of the cases.

15.7 Conclusions

The restrictions SMEs have to cope with if they wish to access financial resources have been broadly debated in the literature (Berger and Udell 1998). Nonetheless, little is still known about the specific problems that new ventures must face during the early stages. The aim of this paper is to contribute evidence in this regard,

identifying the characteristics of the start-ups or of the entrepreneurs that are significantly related with being or having been subject to credit rationing by banks.

The literature establishes that banks need credible signals through which they can evaluate the quality of business start-ups. However, many of the mechanisms available for existing firms to reduce information asymmetries, are not available to new firms (Cassar 2004). To reduce this informational gap, banks could be expected to use observable signals for the underlying quality of the new firm when deciding to grant a credit. However, the most frequent lament concerns the traditional credit risk assessment methods based on collateral (Freel 1999). In this connection, the literature emphasises that new screening devices must be promoted to evaluate a start-up (Colombo and Grilli 2007).

The results obtained in this work have demonstrated that the income level declared by the entrepreneur is the most influential factor acting against being credit rationed. In addition, this represents the only variable that is not associated with the entrepreneur's human capital and experience or with the specific business project profile. The terrain it lies in, therefore, is that of the collateral that the entrepreneur is able to provide, which underlines the capital importance that this aspect takes on in the decision-making criteria adopted by banks.

Educational level did not prove to be a determining factor in this regard, although founders who claim they wield the specific knowledge related to entrepreneurship, register lower percentages of credit constraint. Against expectations, the experience capital accumulated by the entrepreneur (within the sector or through the creation of other start-ups in the past) did not show up as significant either, from which it may be deduced that banks do not even request this information, or it is not decisive in the risk assessment mechanisms.

Turning to start-up project characteristics, the results obtained confirm certain trends. The hypotheses to be tested examine whether credit restriction shows a significant relation with aspects connected with technological intensity, innovation or the export capacity of the new firm. For this purpose, our point of departure is that they are characteristics that, on the one hand, may positively signalise the start-up (greater potential, ambition and quality of the product offered), but they might at the same time be anticipating a greater level of risk and future uncertainty (technology risk, exchange rate risk, orientation to newly created markets, etc.).

Technological intensity, meanwhile, is confirmed as a variable with high discrimination capacity. Accordingly, and in harmony with the literature (Oakey 1995; Giudici and Paleari 2000; Carpenter and Petersen 2002), technology-based start-ups experience sharper credit constraint.

The results from the supply-side imply the certainty that financial institutions are reluctant to lend funds to such projects inasmuch as they lack knowledge regarding to their nature, they do not comprehend the technical-scientific language, and the greater risk perceived increases the information asymmetries between the parties concerned.

However, where innovation of the product/service offered is concerned, although a significant relation is not obtained, the results reveal a tendency in the opposite direction. It is not confirmed therefore whether the most innovative

projects face more credit constraint. From this result flows an interesting conclusion: technology (high-tech sectors) and not innovation is what restricts the projects from accessing credit.

The internationalisation of start-ups was also manifested as a variable with discriminant value. In line with the results obtained, start-ups with higher export capacity exhibit greater difficulties in accessing credit. The result is significant as it demonstrates that banks would assess risks associated with internationalisation higher than the positive signals that an early internationalising start-up might project in terms of potential and expectations of future growth.

Overall, the results have revealed that financial institutions do not utilise signals alternative to reference and collateral-based assessment systems and that NTBFs undergo particularly pronounced credit restriction. Traditional instruments that reveal hidden information are unsuitable for start-ups since the business idea and the companies itself are both new. Apart from that, collateral-based lending poses serious problems for NTBFs. In this connection, to increase credit flow toward start-up firms, would require a revision of the traditional mechanisms for assessing loans and credit lines. An important step forward would be taken in this regard if banks developed more effective risk assessment devices in order to be able to check out the feasibility of proposals. Screening for educational characteristics, examining of business plans or technical due diligences can be powerful instruments for banks to cope with typical problems of asymmetric information in start-ups credits.

As Colombo and Grilli (2007) stress, measures aimed at dealing with the funding gap of start-ups are quite urgent. Although it is necessary to strengthen the VC industry and the angel investor segment as fundamental avenues for dynamising start-up funding (Da Rin et al. 2005), the fact is that, unlike the United States or Great Britain, most countries in Continental Europe have highly bank-based financial systems. This means that bank financing becomes the main source of outside financing for start-ups, which is a situation that is unlikely to substantially change in the medium term. In this regard, if incentives are encouraged so that banks adopt proactive assessment procedures for new ventures, it will help to mitigate information asymmetries, improving the flow of credit towards innovative nascent entrepreneurs with a great potential for future growth.

15.8   Limitations

The main limitation of the analysis is the way of measuring credit constraint. The dependent variable is a dichotomous variable distinguishing whether the entrepreneur replies affirmatively when asked if the start-up had been refused a request for loans, credits or other financial banking products. This question does not provide any insight into the frequency or size of the loans and there is also a lack of information concerning when the credit was requested.

On the other hand, the results of this study have to be tempered by its methodological limitations. The Global Entrepreneurship Monitor (GEM) project argues

that the start-up phase for a SME usually lasts about 3.5 years. However, in certain sectors the seed and start-up phases may expand over time as the product development is associated with very large maturation periods. Therefore, in the case of some high-tech start-ups (biotechnology, bioengineering or pharmacology), it would be necessary to extend the period of time from which to limit the start-up phase.

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Chapter 16
Google Search Activity as Entrepreneurship Thermometer

Raúl Gómez Martínez, Miguel Prado Román, and Carmelo Mercado Idoeta

Abstract Parallel to the use of Internet and the explosion of social networks, there are emerging alternative approaches to the use of surveys that provide us relevant information about many economic variables. Thus, the information of Internet searches that provides Google Trends has been useful to explain financial variables such as investors' mood, demand, volatility and liquidity of securities or currencies, as well as non-financial variables as labour market or housing market. In this paper we propose an econometric model which can provide the temperature of entrepreneurship from Google search activity for terms related to entrepreneurship and business creation.

16.1   Introduction

As the GEM defines itself, the Global Entrepreneurship Monitor (GEM) project is an annual assessment of the entrepreneurial activity, aspirations and attitudes of individuals across a wide range of countries. Initiated in 1999 as a partnership between London Business School and Babson College, the first study covered 10 countries; since then nearly 100 nations have participated in the project, which continues to grow annually. The project has an estimated global budget of nearly USD $9 million; the 2013 survey is set to cover 75 % of world population and 89 % of world GDP so we assume that the stats provided by GEM are a good indicator of entrepreneurship activity.

One of the most relevant indicator of entrepreneurship activity published by the GEM is the Established Business Ownership Rate (Estbbuyy) defined as the percentage of 18–64 population who are currently owner or manager of an established business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than 42 months (GEM 2014). Therefore, keeping in mind this definition, the more owner-managers

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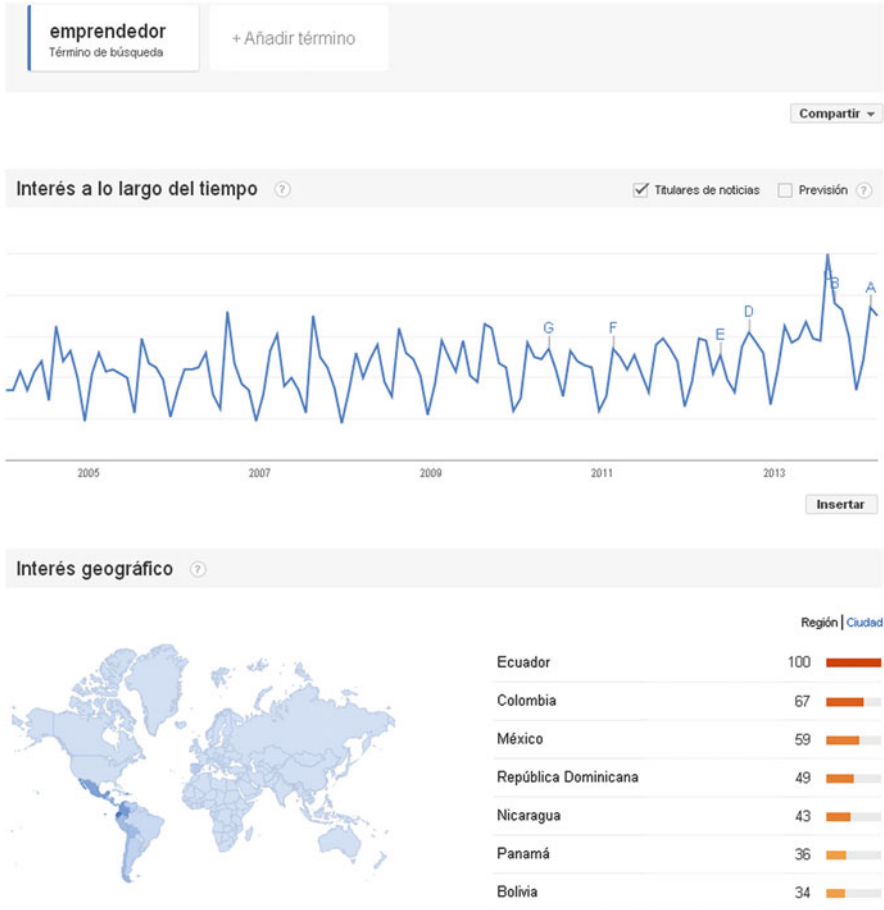
Fig. 16.1 Established business ownership rate vs Google search activity over entrepreneurship (Source: Google Inc.)

we find in a country, the higher entrepreneurship activity we register. This index is published yearly and is build up from the information gathered trough question-naires issued by different surveys.[1]

On the other hand, Google Trends is a public web facility of Google Inc., based on Google Search, that shows how often a particular search-term is entered relative to the total search-volume across various regions of the world, and in various languages. Using its chart visualization, the horizontal axis of the main graph represents time (starting from 2004), and the vertical is how often a term is searched for relative to the total number of searches. Below the main graph, popularity is broken down by countries, regions, cities and language. Figure 16.1 shows how

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[1] The questionnaires are available in: http://gemconsortium.org/docs/cat/135/questionnaires

Google Trends represents the time series of "entrepreneurship" term searches form 2004 to last week.

Note that what Google calls "language," however, does not display the relative results of searches in different languages for the same term(s). It only displays the relative combined search volumes from all countries that share a particular language (see "flowers" vs "fleurs"). It is possible to refine the main graph by region and time period and these historical series can be exported to a spreadsheet format in order to study it. The stats published by Google Trends are a clear indicator of the total or local interest for a certain issue closely linked to the term searched.

In this paper we try to use the information given by Google Trends in order to measure and anticipate the entrepreneurship activity through Established Business Ownership Rate.

16.2 Theoretical Background

With the development of technology and the boom of social networks experienced in the second decade of the century, there are emerging alternative approaches to the use of surveys that provide us the study of how users and consumers seek information and evaluate alternatives before decisions purchase or investment. This new approach has provided new techniques to study different economic values.

The information provided by Google Trends is taking special interest in financial research. Gómez Martínez (2012) develop a model where the evolution of stock indices is explained by the mood of investors measured as the Internet search activity for certain terms related to financial markets. From a weekly sample starting from January 2006 to December 2010, the estimated models registers coefficients of determination R^2 between 70 % and 90 %. This evidence is useful to propose an investment model based on risk aversion index developed from internet searches of pessimistic terms like "Financial Crisis" or "Bear Market" (Gómez Martínez 2013).

Other parallel works published also use Google Trends information to explain the evolution of different financial values like the demand and volatility of securities listed on the NYSE and NASDAQ (Vlastakis and Markellos 2012). Smith (2012) uses Google Trends to explain the market volatility currency. Rose and Spiegel (2012) use information provided by Google Trends to explain the dollar liquidity during the financial crisis.

If we focus on non-purely financial terms, Askitas and Zimmermann (2009) demonstrated the strong correlation of search terms as "unemployment office" or "unemployment rate" with the evolution of the German labor market. McLaren and Shanbhoge (2011), in the context of the UK market, used Google Trends to explain the evolution of the labor and housing markets.

16.3 Hypothesis and Methodology

Our objective is to study if the Google search activity of the term "entrepreneur-ship" can be used as a thermometer of entrepreneurship activity. The idea that supports this study is: The more people searches "entrepreneurship" using Google the bigger entrepreneurship activity will be, so we define a panel data econometric model where Established Business Ownership Rate is the dependent variable and Google searches of "entrepreneurship" term are the exogenous variable.

Panel data analysis is a statistical method, widely used in social science and econometrics, which deals with two-dimensional (cross sectional/times series) panel data. The data are usually collected over time and over the same individuals and then a regression is run over these two dimensions. Multidimensional analysis is an econometric method in which data are collected over more than two dimensions (typically, time, individuals, and some third dimension).

The model we propose is defined as follows:

$$Y_{it} = e^{\alpha} \cdot X_{it}{}^{\beta} \cdot e^{u_{it}} \qquad\qquad \text{Model I}$$

Where:

- Y_{it} is the Established Business Ownership Rate for the country "i" the year "t".
- X_{it} is the mean of Google searches made for "entrepeneurship" term for the country "i" the year "t".
- u_{it} is the model error term.

The sample starts in 2004, first year that Google Trends has published the Google search information, and ends in 2013, so we have 10 "t" observations for each individual of the model.

We use a yearly Sample for the biggest five countries of the European Union according to its population, which are:

• Germany	80.640 million people
• United Kingdome	64.231 million people
• France	63.820 million people
• Italy	59.789 million people
• Spain	46.958 million people

As the language used in each one of the "i" countries included in this study is different we limit the Google searches to each country and the terms studied for searches are:

1. Spain	Emprendedor
2. United Kingdome	Entrepreneurship
3. Germany	Unternehmer
4. Italy	Imprenditore
5. France	Entrepreneur

Individuals "i" goes from 1 to individual 5.

In order to make Model I linear we work using logs so we make the following transformation (Wooldridge 2010):

$$\log(Y_{it}) = \alpha + \beta\log(X_{it}) + u_{it} \qquad \text{Model II}$$

If we settle the following hypothesis: "Google search activity of the term "entrepreneurship" (in different languages) can explain the entrepreneurship activity measured as the Established Business Ownership Rate", we will accept this hypothesis if the β parameter calculated for the Model II are significant in a 99 % confidence interval according to the "t" test.

16.4   Data

The data for the exogenous variable has been collected directly from the web of Google Trends (http://www.google.es/trends/). We use only searches made using Google because it means over the 80 % of the total searches made, that we consider highly representative.

The data of the endogenous variable has been collected directly from the Global Entrepreneurship Monitor Consortium (http://www.gemconsortium.org/).

16.5   Results

The regression made for the Model II using Ordinary Least Squares method (OLS) shows the following results (Table 16.1):

We find a β parameter of 0.34 and its *t stat* is nearly 5, so we can reject the null hypothesis of this test with a 99 % confidence level, and conclude that there is a clear relationship between these two variables. The coefficient of determination measured by R^2 parameter is 34 % what we considerer quite high keeping in mid the simplicity of the model.

So we can accept the hypothesis of this paper and assume that Google search activity of the term "entrepreneurship" can explain the entrepreneurship activity of each country. The relation between Google searches and Established Business Ownership Rate is shown in the chart of Fig. 16.2.

Nevertheless, the β model estimated is convergent instead of efficient because the autocorrelation found according to the Durbin-Watson stat, so we repeat the regression using this time the Weighted Least Squares (WLS) method (Table 16.2).

Now the β parameter is 0.35 (very similar to the previous one calculated) and keeps on being different form zero in 99 % confidence level.

Table 16.1 OLS

```
Modelo 2: MCO combinados, utilizando 50 observaciones

Log(Yᵢₜ) = α + βlog(Xᵢₜ)+uᵢₜ
```

	Coefficient	T stat	P value	significant with > confidence
α	0.42	1.82	0.08	90%
β	0.34	4.98	0.00	99%

```
Se han incluido 5 unidades de sección cruzada
Largura de la serie temporal = 10
Variable dependiente: l_EBOR

            Coeficiente   Desv. Típica   Estadístico t   Valor p
---------------------------------------------------------------
const       0,419890      0,231319       1,815           0,0757   *
1_EBG       0,336241      0,0675520      4,978           8,70e-06 ***

Media de la vble. dep.   1,540599   D.T. de la vble. dep.   0,457127
Suma de cuad. residuos   6,753450   D.T. de la regresión    0,375096
R-cuadrado               0,340438   R-cuadrado corregido    0,326697
F(1, 48)                 24,77560   Valor p (de F)          8,70e-06
Log-verosimilitud       -20,89769   Criterio de Akaike      45,79537
Criterio de Schwarz      49,61942   Crit. de Hannan-Quinn   47,25159
rho                      0,818177   Durbin-Watson           0,339573
```
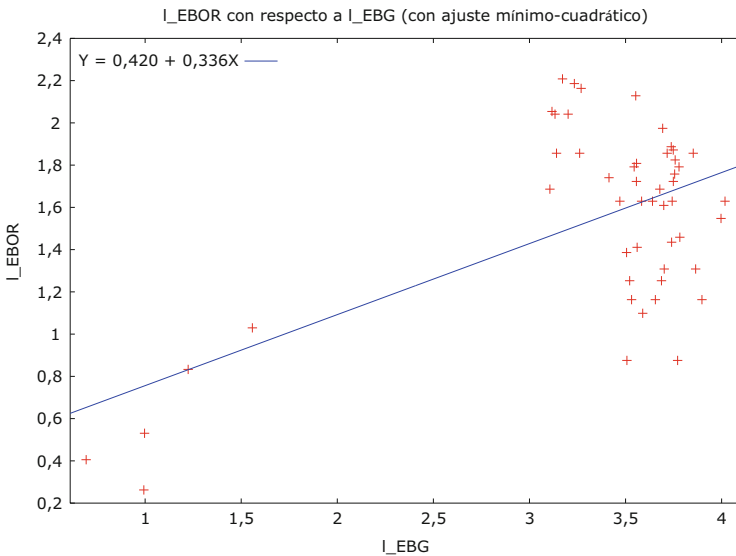

Fig. 16.2 Established business ownership rate vs Google search activity over entrepreneurship

The regressions made using the approach of fixed effects models or first differenced models and random effects models are shown in Tables 16.3 and 16.4. These results lead us to the same conclusion about β parameter with 99 %

Table 16.2 WLS

```
Modelo 6: MC.Ponderados, utilizando 50 observaciones

Log(Yit) = α + βlog(Xit)+uit
```

	Coefficient	T stat	P value	significant with > confidence
α	0.38	1.38	0.17	No
β	0.35	4.55	0.00	99%

```
Se han incluido 5 unidades de sección cruzada
Variable dependiente: l_EBOR
Ponderaciones basadas en varianzas de los errores por unidad

             Coeficiente   Desv. Típica   Estadístico t   Valor p
   ----------------------------------------------------------------
   const      0,382205      0,276347        1,383          0,1730
   l_EBG      0,349082      0,0767324       4,549          3,67e-05 ***

Estadísticos basados en los datos ponderados:

Suma de cuad. residuos  49,92301     D.T. de la regresión    1,019835
R-cuadrado               0,301274     R-cuadrado corregido    0,286718
F(1, 48)                20,69650      Valor p (de F)          0,000037
Log-verosimilitud      -70,90840      Criterio de Akaike    145,8168
Criterio de Schwarz    149,6409       Crit. de Hannan-Quinn 147,2730

Estadísticos basados en los datos originales:

Media de la vble. dep.   1,540599     D.T. de la vble. dep.   0,457127
Suma de cuad. residuos   6,759842     D.T. de la regresión    0,375273
```

Table 16.3 Fixed effects

```
Modelo 4: Efectos fijos, utilizando 50 observaciones

Log(Yit) = α + βlog(Xit)+uit
```

	Coefficient	T stat	P value	significant with > confidence
α	0.86	4.93	0.00	99%
β	0.21	3.99	0.00	99%

```
Se han incluido 5 unidades de sección cruzada
Largura de la serie temporal = 10
Variable dependiente: l_EBOR

             Coeficiente   Desv. Típica   Estadístico t   Valor p
   ----------------------------------------------------------------
   const      0,856744      0,173805        4,929          1,22e-05 ***
   l_EBG      0,205173      0,0513735       3,994          0,0002    ***

Media de la vble. dep.   1,540599     D.T. de la vble. dep.   0,457127
Suma de cuad. residuos   1,954120     D.T. de la regresión    0,210741
R-cuadrado               0,809155     R-cuadrado corregido    0,787468
F(5, 44)                37,31069      Valor p (de F)          9,32e-15
Log-verosimilitud       10,10515      Criterio de Akaike     -8,210293
Criterio de Schwarz      3,261845     Crit. de Hannan-Quinn  -3,841638
rho                      0,443568     Durbin-Watson           1,083201

Contraste de diferentes interceptos por grupos -
  Hipótesis nula: Los grupos tienen un intercepto común
  Estadístico de contraste: F(4, 44) = 27,0161
  con valor p  = P(F(4, 44) > 27,0161) = 2,35704e-011
```

Table 16.4 Random effects

```
Modelo 5: Efectos aleatorios (MCG), utilizando 50 observaciones

Log(Yᵢₜ) = α + βlog(Xᵢₜ)+uᵢₜ
```

	Coefficient	T stat	P value	significant with > confidence
α	0.83	3.51	0.00	99%
β	0.21	4.20	0.00	99%

```
Se han incluido 5 unidades de sección cruzada
Largura de la serie temporal = 10
Variable dependiente: l_EBOR

              Coeficiente   Desv. Típica   Estadístico t   Valor p
   ------------------------------------------------------------------
   const       0,831791     0,236853          3,512       0,0010  ***
   l_EBG       0,212660     0,0506067         4,202       0,0001  ***

Media de la vble. dep.   1,540599   D.T. de la vble. dep.   0,457127
Suma de cuad. residuos   7,224328   D.T. de la regresión    0,383973
Log-verosimilitud       -22,58271   Criterio de Akaike      49,16541
Criterio de Schwarz      52,98946   Crit. de Hannan-Quinn   50,62163

Varianza 'dentro' (Within) = 0,0444118
Varianza 'entre' (between) = 0,138764
theta usado para quasi-demeaning (casi quitar la media) = 0,8211

Contraste de Breusch-Pagan -
  Hipótesis nula: Varianza del error específico a la unidad = 0
  Estadístico de contraste asintótico: Chi-cuadrado(1) = 89,5688
  con valor p  = 2,96163e-021

Contraste de Hausman -
  Hipótesis nula: Los estimadores de MCG son consistentes
  Estadístico de contraste asintótico: Chi-cuadrado(1) = 0,870769
  con valor p  = 0,350742
```

confidence level and shows that there is not a common interception and the Generalized Least Squares (GLS) method is consistent.

16.6 Conclusions

Keeping in mid the registered results of this study we can conclude that Internet search activity can predict the behavior of the business and could be consider as an important tool for the analysis of the business sector (Gómez Martínez 2012).

To do this research we follow Ordinary Least Squares method (OLS), but in this method the parameter is convergent instead of efficient. Then we recalculate it using Weighted Least Squares (WLS) method. In the first method the parameter of the term "entrepreneurship" was 0.32. In the second method was 0.35. This allows us to reject the null hypothesis with a confidence level of 99 %.

R2 parameter is 34 %. This value is a bit small, but if we consider the simplicity of the model, this value must be considered quite high. In agreement to this we accept the hypothesis that the search term "entrepreneurship" in the Google's tool can explain entrepreneurial activity. This is more important if consider that Google represents 80 % performed searches on Internet.

If we analyze the limitations of this investigation we have to stand out the difficulty of homogenizing the terms that reflect entrepreneurial activity in the countries that we selected: Germany, UK, France, Italy and Spain. Also it is necessary to indicate that the investigation only analyzes the five European Union biggest countries.

Regarding to future lines of investigation, we are studying to extend the sample analysis to more countries. The process is to extend it to the rest of European countries and then analyze other relevant no european countries. In the meantime we think this study provides a new tool to measure the entrepreneurship temperature without the need of waiting to the next poll.

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Chapter 17
Microfinance Institutions (MFIs) in Latin America: Who Should Finance the Entrepreneurial Ventures of the Less Privileged?

R. Cervelló-Royo, I. Moya-Clemente, and G. Ribes-Giner

Abstract The purpose of this paper is to study the relationship of the so-called microfinance in the entrepreneurial activity of small business entrepreneurs. To do this, the activity of microfinance institutions in Latin America is analysed, as a higher degree of this kind of activity has been reached in this continent. To this end, the current paper analyses the granting of small loans to micro-entrepreneurs who, due to the economic conditions in their countries, can not find jobs and decide to start their own small businesses or micro-enterprises to improve their own and their families standard of living. These entrepreneurs, lacking financial resources, are left outside the conventional banking system as such operations are too risky and expensive to be profitable. Therefore, microcredits stand as an alternative that prevents them from relying on predatory lenders whose extremely high interest rates do not allow to start new projects. This improvement is especially significant in the case of women.

17.1 Introduction

Since the start of the financial crisis in 2007, the conventional banking system has restricted credit to both businesses and families, especially to less-privileged classes as such operations are too risky and expensive to be profitable. However, it has been proved that people from that social class are able to offer feasible and promising investment ideas to start profitable and successful businesses (Hollis and Sweetman 1998). They are referred to as micro-entrepreneurs, given the small size of the projects they undertake. Which is the origin of today's "microcredits"; small

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loans granted to socially disadvantaged classes so that they are able to develop their projects independently. Thus, micro-entrepreneurs, many of whom are unemployed, decide to start their own small businesses or micro-enterprises to improve their own and their families standard of living, a significant improvement especially in the case of women. Therefore, microcredits stand as an alternative that prevents them from relying on predatory lenders whose extremely high interest rates do not allow to start new projects.

Thus, the World Bank Report (2007) defines microfinance as "Small loans that help disadvantaged people who wish to start or expand their small business but are not eligible to be granted a regular banking loan. Also called micro lending." These small loans are managed by a new type of financial institutions, often non-profit organisations (NGOs), called Microfinance Institutions (MFIs). This special type of financial institutions are in contact with the local community, are able to gather information about the low-cost borrower and are not only interested in obtaining profit, but also in other aspects such as development, job creation, equality, the situation of women in the labour market and ecological and environmental issues and, therefore, are closely linked to what is known as social entrepreneurship; "The concept of social entrepreneurship is, in practice, recognized as encompassing a wide range of activities; Enterprising individuals devoted to making a difference; social purpose business ventures dedicated to adding for-profit motivations to the non profit sector;"(Peredo and McLean 2006).

Among its features we can highlight the small amount of the granted loans, ranging between 50 and 5,000 dollars, such loans differ between the different continents. They also offer simple credit management and an amortisation period of usually less than a year, with even weekly instalment payment options. MFIs are generally increasing their offer of financial services provided to their customers: they grant loans, accept deposits, make transfers and even provide insurance services to their customers. Naturally, in addition to financial intermediation, they provide social services and perform an important social intermediation task, including entrepreneurial training and the development of human capital, the implementation of a network of social contacts and the subsequent creation of opportunities.

It is also necessary to point out the existence of potential risks in the MFIs, which arise from a poor implementation of the financial instrument without considering that this is a particularly vulnerable social group that requires some flexibility in the application of the reimbursement criteria and methods applicable in the conventional banking system.

The purpose of this paper is to study the relationship of the so-called microfinance in the entrepreneurial activity of small business entrepreneurs. To do this, the activity of microfinance institutions in Latin America and the Caribbean is analysed, as a higher degree of this kind of activity has been reached in this continent.

An example of a global pioneer is the Gramenn Bank, established in Bangladesh in 1982 thanks to an activity promoted by a professor of economics at the University of Chittagong, Muhammad Yunus, who in 1976 lent 27 dollars to 42 poor villagers. (Current data). Currently the bank is owned by its borrowers, 94 % of the

shares are held by people (most of them poor) who received a loan thereof, retaining its vocation to provide funding to activities related to the creation of micro-enterprises, trying to boost self-employment in Bangladesh.

Similarly, in the Latin America and the Caribbean region, the same activity was performed by Accion International, which was established in Recife (Brazil) about the same time that Gramenn Bank in Bangladesh, indicating the similarity of the problems faced in developing countries and the possibilities microcredits offer as financial innovation to boost the activity of micro-entrepreneurs in these countries which have high levels of poverty. All these initiatives are within the so-called "social entrepreneurship" according to Seelos and Mair (2005), which has received significant support from international cooperation organisations. Social entrepreneurs would be society's change agents: pioneers of innovation that benefit humanity (Neck et al. 2009).

Microfinance institutions in Latin America have achieved significant success in their efforts to increase financial activity in order to help marginalised populations, with a steady increase in the number of customers, which has turned Latin America, together with Asia, into one of the fastest growing areas supporting the micro-enterprise sector.

17.2   Microfinance Institutions (MFIs): Previous Research

Private Capital banks (Bonin et al. 2005; Pastor 2002; Tortosa-Ausina 2002; Pastor et al. 1997; Berger et al. 2000) and Savings banks (García et al. 2010) are institutions which in the last years have been blamed for being responsible of credit restriction to the less-privileged classes who are not in a condition to offer loan guarantees. In order to meet this need, new financial intermediaries have arisen, the Microfinance Institutions (MFIs), which provide small loans (microcredits) to poor people who have promising and feasible investment ideas that can lead to profitable ventures. These new financial institutions are in touch with the local community, can gather information about the low-cost borrower and are not only interested in profit but also on economic development, the creation of jobs, women's employment and ecological and environmental issues. Their best known innovation is the "peer group loan methodology," by which members accept joint liability for the individual loans granted. However, these special financial institutions are also interested in financial matters like profitability, returns and efficiency. Morduch (1999) criticises that discussions on microcredit performance usually ignore important financial matters, while Yaron (1994) started to analyse and study the dual concept of outreach and sustainability.

The evolution and expansion of the Microfinance Industry has lead to consider all these aspects; so a set of performance indicators has been introduced, many of which have been standardised. Thus, in 2003, a consensus group composed of microfinance rating agencies, multilateral banks, donors and private voluntary organisations agreed to some guidelines on definitions of financial terms, ratios

and adjustment for microfinance (CGAP 2003). Since then, there is a lot of literature which deals with aspects like sustainability/profitability, asset/liability management and/or portfolio quality (Ahlin et al. 2011; Cull et al. 2011; McIntosh and Wydick 2005; Mersland 2009) whereas there is little literature on efficiency/ productivity of these institutions (Bartual Sanfeliu et al. 2013; Gutierrez-Nieto et al. 2007; Gutiérrez-Nieto and Serrano-Cinca 2007).

However, the high spread of these special financial institutions all over the world (Latin America and the Caribbean, Africa, East Asia and the Pacific, Eastern Europe and Central Asia, Middle East and North Africa, etc.) has increased the available public information about them to the point that it becomes complicated to the stakeholders (international organisms and institutions, governments, rating agencies, donors, institutional investors, shareholders, traditional trading banks, etc.) to distinguish between the relevant and irrelevant information, and to eliminate the latter.

Entrepreneurship is the assumption of risk and responsibility in designing and implementing a business strategy or starting a business, it refers to a person who undertakes and operates a new enterprise or venture, and assumes some account-ability for the inherent risk. Early studies in social entrepreneurship include a wide range of activities like individuals in enterprises devoted to making a difference; social purpose business ventures devoted to adding to profit, motivations to the nonprofit sector; and nonprofit organizations that are reinventing and making innovations as a change makers by drawing lessons learnt from the business world" (Peredo and McLean 2006).

The World Bank suggests that microcredit as part of an entrepreneurial devel-opment approach that also focuses on education, skills improvements and innova-tion (Acs and Virgill 2010). More recent studies have shown that a large part of microcredit is in fact being used for consumption and not for income-generating activities (Morduch 2013).

Hiatt and Woodworth (2006) reported that rural banking would help rural poor by providing opportunities in developing of small enterprises. Purohit (2003) indicated that the aim of financial facilities is to enhance their moral and self reliance and eventually creating employment. Also, impoverished borrowers may use the microfinance loans either for meeting their consumption needs or for building microenterprises (Karlan and Valdivia 2011).

The most important findings of Hosseini et al. (2012) are that economic factors have affected the development of entrepreneurship among members of microcredit funds. The purpose of this microcredit programme is to give loans for self-employment that generates income and allows them to care for themselves and their family members (Sankaran 2005).

Research on the impact of the social network dynamics of borrowing groups on the incidence of serial entrepreneurship by members of the group (Dowla 2006; Pickering and Mushinski 2001).

Regarding employment, Pathak and Gyawali (2012) said that the microfinance programme has a positive impact and plays a vital role in enterprises creation and employment generation.

Recent studies explore the vast diversity of self-employment, disentangling opportunities versus necessities, push versus pull factors and "growth-oriented" versus "survivalist-oriented" self-employment (Ligthelms 2005; Grimm et al. 2012; Berner et al. 2012).

The study in Latin America, finds that self-employment may be precarious and unprofitable for some isolated individuals, but is beneficial for the majority (Maloney 2004).

17.3   MFIs in Latin America and the Caribbean

In Tables 17.1, 17.2 and 17.3, it can be seen, in 2010, in a disaggregated way the total number of Latin America and Caribbean Microfinance Institutions and the influence that each country has on the overall region.

In first place we shall analyse the Institutional Characteristics and/or size of each Country:

– Total assets: Total assets, adjusted for inflation and standardised provisioning for loan impairment and write-offs.
– Offices: Number, including head office.
– Personnel: Total number of staff members.

As it can be seen in Table 17.1, in regards to size, Peru is the country with the largest number of MFIs and Total Assets while, in regards to number of offices and employment created, Mexico tops the list. These two countries, together with Colombia, have the largest number of MFIs, assets, offices and personnel of the whole of Latin America and the Caribbean. Although it should be noted that despite not having a high number of MFIs, offices and personnel, Bolivia has a high number of assets with respect to other countries. On the other hand, Uruguay is the country in which such entities have less activity, together with Venezuela, however, the latter, despite having only one entity, has generated a great number of jobs.

Table 17.2 shows the main indicator of the Financing structure. Debt to Equity, which relates the Adjusted total liabilities to Adjusted equity.

This way it can be seen how the MFIs in Bolivia, while holding the 4th place in terms of size, have the highest degree of leverage of the region's total, 9.51, against the average for the region (3.44), followed by the only MFI in Venezuela and the MFIs in Ecuador, with an average of 6.44 and 5.56 respectively. In those countries where these entities have greater activity, their leverage is between 3 and 4.

Taking Outreach indicators:

– Number of Active Borrowers, Number of borrowers with loans outstanding, adjusted for standardised write-offs
– Percent of women borrowers, Number of active women borrowers/Adjusted number of Active borrowers
– Gross loan portfolio, Gross loan portfolio adjusted for standardised write-offs.

Table 17.1 Latin America and the Caribbean MFIs: size and institutional characteristics indicators

| | Number | % | Total assets | % | SIZE/Institutional characteristics | | | | |
					Offices	%	Personnel	%
Argentina	10	2.99 %	27,748,308	0.11 %	44	0.62 %	417	0.39 %
Bolivia	23	6.87 %	2,553,286,213	10.43 %	782	10.93 %	10,386	9.77 %
Brazil	23	6.87 %	1,120,615,917	4.58 %	646	9.03 %	4,289	4.04 %
Chile	4	1.19 %	1,227,264,982	5.01 %	256	3.58 %	1,522	1.43 %
Colombia	29	8.66 %	5,209,224,959	21.28 %	755	10.56 %	14,043	13.21 %
Costa Rica	12	3.58 %	73,497,442	0.30 %	21	0.29 %	226	0.21 %
Dominican Republic	4	1.19 %	277,443,882	1.13 %	95	1.33 %	1,509	1.42 %
Ecuador	44	13.13 %	1,646,677,805	6.73 %	418	5.84 %	4,906	4.62 %
El Salvador	14	4.18 %	495,577,423	2.02 %	146	2.04 %	2,319	2.18 %
Guatemala	18	5.37 %	95,933,188	0.39 %	124	1.73 %	1,144	1.08 %
Haiti	6	1.79 %	74,557,293	0.30 %	111	1.55 %	1,751	1.65 %
Honduras	15	4.48 %	310,544,316	1.27 %	216	3.02 %	2,207	2.08 %
Mexico	37	11.04 %	3,327,485,970	13.60 %	1,763	24.65 %	30,616	28.81 %
Nicaragua	24	7.16 %	616,587,848	2.52 %	312	4.36 %	4,418	4.16 %
Panama	4	1.19 %	22,179,090	0.09 %	20	0.28 %	174	0.16 %
Paraguay	6	1.79 %	686,043,276	2.80 %	180	2.52 %	2,726	2.57 %
Peru	60	17.91 %	6,592,097,611	26.93 %	1,247	17.43 %	23,116	21.75 %
Uruguay	1	0.30 %	3,629,014	0.01 %	1	0.01 %	27	0.03 %
Venezuela	1	0.30 %	115,270,327	0.47 %	16	0.22 %	471	0.44 %
Total Latin America and The Caribbean	335	100 %	24,475,664,864	100 %	7,153	100 %	106,267	100 %

Source: Author's own elaboration from MixMarket data

Table 17.2 Latin America and the Caribbean MFIs: financing structure indicator

	Financing structure
	Debt to equity ratio (average)
Argentina	4.20
Bolivia	9.51
Brazil	1.71
Chile	3.04
Colombia	3.25
Costa Rica	2.42
Dominican Republic	2.93
Ecuador	5.56
El Salvador	2.60
Guatemala	1.83
Haiti	4.25
Honduras	1.99
Mexico	3.05
Nicaragua	5.17
Panama	1.25
Paraguay	5.38
Peru	4.06
Uruguay	1.02
Venezuela	6.44
Total Latin America and The Caribbean	3.44

Source: Author's own elaboration from MixMarket data

– Average loan balance per borrower, Adjusted Gross Loan portfolio/Adjusted number of Active borrowers

Table 17.3 displays the total number of Active Borrowers for the whole of Latin America and the Caribbean, which amounts to nearly 14 million people; which gives an idea of the contribution of microcredit to the development of these micro-entrepreneurs, more so if they have been granted to a family unit comprised of five people, the figure could possibly even benefit and improve the lives of nearly 90 million people in this area or region. Also of note is that, out of the total of Active Borrowers, nearly 60 % are women, which certainly contributes to progress on gender equality in developing countries, improving economic and social conditions for women.

Mexico, Peru and Colombia, in that order, continue to have the highest number of Active Borrowers. However, looking at the % of women borrowers it can be seen how Haiti has the highest % average, with about 80 % of women borrowers followed by Mexico with nearly 75 %.

The total funding granted by MFIs amounted to almost $20 billion of which about 28 % correspond to Peru, followed by Colombia and Mexico, with 20.24 % and 13.75 % respectively. These figures show the great support provided by MFIs to micro-entrepreneurs in Latin America and the Caribbean. For the whole of this

Table 17.3 Latin America and the Caribbean MFIs: outreach indicators

	Number of active borrowers	%	Outreach indicators		Gross loan portfolio	%	Average loan balance per borrower
			Percent of women borrowers (average)				
Argentina	30,000	0.22 %	0.62		21,599,339	0.11 %	639.60
Bolivia	873,015	6.26 %	0.56		1,854,272,891	9.53 %	2,144.52
Brazil	820,728	5.89 %	0.49		934,495,018	4.80 %	1,946.96
Chile	216,723	1.55 %	0.63		1,289,299,885	6.63 %	2,354.50
Colombia	2,172,670	15.58 %	0.55		3,937,424,581	2.24 %	1,332.14
Costa Rica	23,300	0.17 %	0.48		59,430,908	0.31 %	8,311.67
Dominican Republic	216,542	1.55 %	0.64		223,338,734	1.15 %	816.50
Ecuador	667,696	4.79 %	0.59		1,280,979,117	6.58 %	1,598.64
El Salvador	184,191	1.32 %	0.63		370,513,638	1.90 %	1,427.93
Guatemala	140,749	1.01 %	0.73		72,306,785	0.37 %	674.42
Haiti	109,842	0.79 %	0.79		51,605,988	0.27 %	537.33
Honduras	164,789	1.18 %	0.61		217,168,691	1.12 %	1,155.71
Mexico	4,433,698	31.80 %	0.74		2,675,564,135	13.75 %	523.06
Nicaragua	391,375	2.81 %	0.55		472,307,344	2.43 %	1,046.21
Panama	12,695	0.09 %	0.26		17,236,097	0.09 %	5,494.00
Paraguay	404,874	2.90 %	0.46		516,809,699	2.66 %	1,191.50
Peru	3,041,864	21.82 %	0.37		5,362,381,300	27.56 %	1,576.61
Uruguay	1,227	0.01 %	0.43		25,77,858	0.01 %	2,101.00
Venezuela	35,880	0.26 %	0.62		96,499,468	0.50 %	2,690.00
Total Latin America and The Caribbean	13,941,858	100 %	0.57		19,455,811,476	100 %	1,976.96

Source: Author's own elaboration from MixMarket data

region, the average balance per borrower is close to $ 2,000. The figures vary from the small average loan amount in the case of Mexico, about $ 523, to the highest amount, $ 8,311, corresponding to Costa Rica.

17.4   Conclusions

As an alternative to the conventional banking system, in recent years, microfinance institutions have become increasingly important in developing countries with high levels of poverty and unemployment; especially highlighting their work in Southeast Asia and Latin America. In this paper we have analysed the role of MFIs in Latin America, which have financed the ventures of micro-entrepreneurs through microcredits. Thus, the gap left by other institutions is filled by MFIs compliance with the important social role of granting loans to lower social strata, while being able at the same time to offer feasible and promising investment ideas that may start up profitable and successful companies. Thus, it could be argued that MFIs are not only interested in profit, but also in areas such as development, job creation, equality, the situation of women in the labour market and ecological and environmental issues By analysing the Latin America and the Caribbean regions it has been verified that the proliferation and activity of these institutions is remarkable in countries like Mexico, Peru and Colombia. Variables of size and number of institutions, offices, employment generated, etc. underline the above fact. When looking at the financing structure, it can be seen that the average is 3.5, which shows a reasonable level of leverage for the type of activities they fund. Last but not least, the outreach indicators show that about 14 million people benefit from the activity of these institutions, of which almost 60 % of all beneficiaries are women. The average capital amount is of 2,000 dollars, in accordance with the increase in micro-entrepreneurship.

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Chapter 18
Entrepreneurship and Open Innovation in Spanish Manufacturing Firms

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Abstract By examining firms' internal and external knowledge sources, this paper explains how external knowledge sources influence firms' production and process innovation output. In other words, this chapter presents analysis of how open innovation (inbound) activities are innovation drivers. This paper presents results of a study that took place in low- and medium-tech (LMT) sectors, principally consisting of SMEs. The paper also explores key variables that determine innovation performance of both R&D and non-R&D innovators. Panel data spanning 4 years (2003–2006) was used for this analysis. This yielded dynamic results, offering an original contribution to discussions on entrepreneurship-driven innovation management. Results also reveal the role of external knowledge sources. Empirical analysis was based on a representative panel of 1,145 Spanish manufacturing firms. Data came from the Spanish Ministry of Industry.

18.1 Introduction and Background

Cohen and Levinthal (1990) highlighted firms' necessity to develop certain capabilities so that they may profit from external knowledge flows. They defined the concept of *absorptive capacity* as the "ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends". This capacity is a critical part of innovation performance. Factors like market internationalization – due to globalization – or improvements in diffusion – thanks to advances in technology – have increased the importance of this capability. The proportion of crucial knowledge generated outside a firm's boundaries is expected to grow in coming years. The open innovation model (Chesbrough 2003), in contrast to the closed innovation model, was built under the assumption that firms can and should use external as well as internal ideas to improve their technology. Instead of

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focusing on controlling ideas, emphasis would be on developing a business model to implement and capitalize on these ideas, whether via internal or external means. Concepts such as *patent acquisition* and *spin-offs* are cited as examples of important external innovation sources that arise from entrepreneurial action.

The term open innovation (Vareska van de Vrande et al. 2009) has taken hold in the scientific community since being coined by Chesbrough (2003). Despite this, recent studies have revealed a reluctance among academics to accept the impact of such knowledge acquisition strategies and their knock-on effects on businesses. An example of such a research stance is the study by the European Commission (Ebersberger et al. 2011), which linked open innovation with absorptive capacity. Nevertheless, the issues surrounding open innovation are not as novel as they at first seemed. Doubts as to its effectiveness have surfaced, supported by empirical evidence. In general, input activities (inbound) or the use of marketing (outbound) to gain knowledge for innovation (i.e., open innovation) are established topics in management literature (e.g., Huizingh 2011; Dahlander and Gann 2010). In fact, as Dahlander and Gann (2010) argued, the concepts of absorptive capacity (Cohen and Levinthal 1990), complementary assets for innovation (Teece 1986) or lead users (von Hippel 1986) already suggest the existence of activities related with input and output knowledge in order to complement and/or take advantage of the innovative efforts of companies. Although most studies have extolled benefits of open innovation (e.g., Escribano et al. 2009), they have offered little evidence of potential disadvantages. For instance, Grant (1996) suggested that managing collaborations with partner companies may increase coordination costs and lead to opportunistic behavior. This would generate more rivalry. Laursen and Salter (2006) indicated that too much openness to innovation (i.e., the number of external knowledge sources which companies draw upon, including suppliers, customers, universities, and the like) can worsen innovative performance. Limited resources and projects for companies to focus on can create an inverted U-curve for performance versus open innovation. Similarly, Laursen and Salter (2014) suggested that open innovation begets the following paradox: Although collaboration with external agents increases company exposure to new ideas and therefore improves innovation performance, subsequent collaboration may mean that companies fail to capture returns from this innovation. In other words, innovation requires openness to external knowledge sources and ideas, but marketing innovation output needs protection. As Laursen and Salter's (2014) study empirically demonstrated, firms more oriented towards protecting and appropriating innovations collaborate less and are less open to external knowledge sources, especially in terms of formal relationships. This finding yet again demonstrates an inverted U-curve between these constructs. This *fear* effect not to appropriate returns on investment leads to greater internalization – instead of being open to new ideas – regarding the innovation process. Therefore, too much openness can lead to failure to appropriate innovative results. Thus, open innovation is interesting only up to a certain degree. Hence, empirical research to analyze disadvantages in addition to advantages is necessary.

This chapter presents a study of open innovation application in SME's and/or low-tech firms – as opposed to R&D intensive firms – in traditional sectors (Spithoven 2010). Many issues to do with this business area require further

investigation, especially for countries like Spain, Portugal, and Italy, where SME's and/or low-tech firms in traditional sectors abound. Chiaroni (2011) focused on "understanding the relevance of Open Innovation beyond high-tech industries and studying how firms implement Open Innovation in practice" by studying the leading cement manufacturer in Italy. Segarra-Blasco and Arauzo-Carod (2008) focused on determinants of R&D cooperation between innovative firms and universities for a sample of innovative firms in Spain.

Even interaction (moderation) effects between internal and external resources are unclear. Some scholars have claimed they are positive (see Cassiman and Veugelers 2006; Nieto and Quevedo 2005; Escribano et al. 2009), whereas others have reported negative effects (Laursen and Salter 2006; Vega-Jurado et al. 2008). This paper offers valuable insight on this core topic in the innovation management field.

The **purpose** of our study was to explore how R&D and non-R&D activities explain firms' innovation performance. Research focused on low- and medium-tech (LMT) sectors where most firms are SMEs. Traditionally, innovation management scholars have focused on R&D innovators, under the assumption that innovation equates to R&D activities. In addition, this study's scope was longitudinal (dynamic analysis using panel data). The consideration of dynamic effects is an original contribution.

We analyzed innovation management and performance in low-tech contexts. Although the chosen research context was Spain, we could also have performed our research for Portugal, Greece, Italy, or any other such economy. Our aim was to show that innovation not exclusively relying on R&D can also be viable in certain countries, at least in the short or medium term. Analyzing innovation in some low-tech contexts by examining only R&D efforts fails to capture the reality of these contexts.

18.2   Research Hypotheses

After drawing upon the existing literature, we formulated the following hypothesis:

H1: Engaging in open innovation activities – i.e. access to external (inbound) knowledge sources – influences innovation output.

H2: Absorptive capacity and external (inbound) knowledge sources influence innovation output.

In addition, we explored which activities are significant in explaining innovation output

18.3 Methodology

18.3.1 Data

The original data came from the *Encuesta sobre Estrategias Empresariales*, or ESEE (Suvery on Business Strategy) by the *Fundación SEPI* (SEPI Foundation), a public foundation in Spain that is part of the Spanish Ministry of Industry. ESEE is designed to provide data on manufacturing companies with 10 or more workers. The geographical reference is the entire Spanish national territory. Variables are annual. Each year, a sample is chosen using stratified sampling. It is intended to be as representative as possible of the manufacturing sector. An average of 1,800 companies are surveyed yearly with a questionnaire comprising 107 questions with more than 500 fields. The questionnaire includes information about revenues and annual accounts.

A panel database comprising 4,357 Spanish firms was published annually in 2003, 2004, 2005, and 2006. We chose 1,145 of these firms for study between 2003 and 2006. We classified these companies according to CNAE (*Clasificación Nacional de Actividades Económicas*). CNAE is an adaptation for Spay of NACE (*Classification of Economic Activities in the European Community*) and ISIC (*International Standard Industrial Classification of all Economic Activities*) (Table 18.1).

Table 18.1 List of industries

Industry	No. of firms	%
1. Meat industry	30	2.6
2. Food and tobacco industry	106	9.3
3. Drinks	18	1.6
4. Textiles	92	8.0
5. Leather and footwear	25	2.2
6. Wood working industry	42	3.7
7. Paper industry	42	3.7
8. Editing and graphic arts	64	5.6
9. Chemical products	78	6.8
10. Rubber and plastic materials	66	5.8
11. Non-metallic mineral products	82	7.2
12. Ferrous and non-ferrous metals	51	4.5
13. Metallic products	131	11.4
14. Farm and industrial equipment	82	7.2
15. Office equipment. Data processing	13	1.1
16. Electrical equipment	59	5.2
17. Motor vehicles	64	5.6
18. Other transport material	18	1.6
19. Furniture	63	5.5
20. Other manufacture industries	19	1.7
Total	1,145	100

18.3.2 Variables

Next, we identified and defined relevant variables, identifying dependent and independent variables. Below, we provide descriptive sample statistics for these variables. The variables came directly from the survey. They were nonetheless modified to match the variables under study:

– Variables related to innovation (R&D, absorptive capacity, etc.) were selected. Other variables of no interest were discarded.
– Dichotomous variables for years 2003–2006 were added to yield constructs measuring intensity according to a scalar variable for 2003–2006.
– Variables in monetary units (€) were added to measure, for example, investment or results for 2003–2006.
– Other variables (€/worker, percentages, etc.) were averaged over 2003–2006.

Transforming dichotomous variables into scalars aggregated for years 2003–2006 also allowed us to control the *dynamic effect of innovation*, a variable scarcely mentioned in the literature. Table 18.2 gives details on the variables under study.

18.3.3 Data Processing

To process the data, we used OLS and logistic regression methods. Our aim was to explain innovation performance in the form of the following expression:

$$Innovation\ t,i = Const + \beta1\ Absorptive\ Capacity_{t-1}\ using\ R\&D\ and\ non-R\&D\ variables +$$
$$\beta2\ External\ linkages_{t-1}[customers_{t-1} + suppliers_{t-1} + competitors_{t-1} + universities]\ i +$$
$$\beta3\ absorption\ and\ interaction\ effects + \beta4\ Control_{t-1}\ (ln\_employees + GB]\ i +$$
$$\beta5\ industry_{t-1}\ [Pavitt + OECD] + \varepsilon i.$$

Table 18.2 List of variables

IdVar	Variable	IdVar	Variable
Depending variables			
IP	Product innovation	**ROA**	Gross operating profit
IPR	Process innovation		
Other variables			
R&D exter	External R&D activities	**R&D intern**	Internal R&D activities
SUPPLIERS	Technological collaboration with providers	**PAI**	Innovation activity planning
DESIGN	Design	**MK**	Market research
JV	Technological cooperation agreements	**MODUT**	Utility models
CADN corr	Use of cad	**NACE**	Activity
CUSTOMER	Technological collaboration with clients	**NIP**	Number of product innovations
COMPETIT	Technological collaboration with competitors	**PATENT**	Patents registered in Spain
PROs	Collaboration with university and/or technological center	**SKILL**	Ratio of engineers and graduates
DCT corr	Management or technology committee	**PL**	Workers productivity (added value)
ECT	Perspectives technological change assessment	**AAT**	HI-Tech activities
ESFETEC	Technological effort	**RBN**	Use of robotics
RD employ	Total relative employment in R&D	**REEID**	Hiring of staff with R&D expertise
RD exp ext	External expenses	**SICYT**	Scientific and technical information services
RD PL ext	External R&D expenses to companies	**SSFN**	Use of flexible systems
RD PL int	Internal R&D expenses	**UAIT**	Use of assessors for technological information
RD Sales	R&D expenses over sales	**UAIT**	Use of assessors for technological information
IILR	Hired engineers and/or recent graduates		

Note: Addition of categorical variables for 2002–2006, scale from 0 to 4

18.4 Results

Table 18.3 shows results of the degree of product innovation (IP) and process innovation (IPR) for companies in the sample. Results are stated as an accumulated percentage of companies engaging in each type of innovation. More than 76 % of companies are occasional product innovators or non-innovators. Around 10 % are occasional – they claim to perform innovations once every 4 years – , and more than 66 % are non-innovators – declaring no innovation at all. Results for process innovation (Table 18.4)

Table 18.3 Frequency of innovation in sample companies

Product innovation	IP	Frequency	Valid percentage	Accumulated %
Non-innovators	0	759	66.3	66.3
Occasional innovators	1	118	10.3	76.6
	2	75	6.6	83.1
Moderate innovators	3	71	6.2	89.3
Strategic innovators	4	122	10.7	100.0
	Total	**1,145**	**100.0**	
Process innovation	IPR	Frequency	Valid percentage	Accumulated %
Non-innovators	0	626	54.7	54.7
Occasional innovators	1	178	15.5	70.2
	2	97	8.5	78.7
Moderate innovators	3	103	9.0	87.7
Strategic innovators	4	141	12.3	100.0
	Total	**1,145**	**100.0**	

Table 18.4 Influence of external (inbound) sources of knowledge on IP

Embeddedness or interactions with	Innovation in product (IP)	Number of firms	Mean	S.D.	F	Sig.
Customer	0	759	0.39	1.081	55.552	0.0000
	1	118	1.15	1.594		
	2	75	1.45	1.758		
	3	71	1.58	1.696		
	4	122	2.01	1.856		
	Total	1,145	0.78	1.456		
Competi	0	759	0.05	0.42	6.887	0.0000
	1	118	0.19	0.716		
	2	75	0.21	0.776		
	3	71	0.34	0.97		
	4	122	0.2	0.651		
	Total	1,145	0.11	0.564		
Supplier	0	759	0.44	1.135	72.901	0.0000
	1	118	1.42	1.614		
	2	75	1.65	1.79		
	3	71	1.97	1.748		
	4	122	2.27	1.823		
	Total	1,145	0.91	1.531		
PROs	0	759	0.54	1.246	53.264	0.0000
	1	118	1.35	1.697		
	2	75	1.48	1.758		
	3	71	2.03	1.82		
	4	122	2.21	1.796		
	Total	1,145	0.96	1.566		

are very similar. Strategic innovators are marginally more prevalent in this case (141 companies that innovate during the whole period vs. 122 in product innovation), but more than 70 % of companies are occasional process innovators (around 15 %), or non-innovators (more than 54 %).

Analysis of coefficients (Table 18.4) shows that product innovation performance increases with higher values of embeddedness or interactions like CUSTOMER, SUPPLIER, and so forth. The same result holds for process innovation (Table 18.5). A direct relationship between open innovation activities and innovation performance emerges, thus confirming the first hypothesis.

ANOVA results are shown in the following tables. All β coefficients from regressions are significant, including variables related to absorptive capacity and those associated with open innovation. This confirms the second hypothesis. As expected, more innovative companies appear to perform several activities that are

Table 18.5 Influence of external (inbound) knowledge sources on IPR

Embeddedness or interactions with	Innovation in process (IPR)	Number of firms	Mean	S.D.	F	Sig.
CUSTOMER	0	626	0.35	1.042	47.02	0.000
	1	178	0.87	1.486		
	2	97	1.16	1.663		
	3	103	1.39	1.676		
	4	141	1.89	1.815		
	Total	1,145	0.78	1.456		
COMPETI	0	626	0.04	0.381	5.718	0.000
	1	178	0.13	0.611		
	2	97	0.18	0.722		
	3	103	0.22	0.804		
	4	141	0.25	0.776		
	Total	1,145	0.11	0.564		
SUPPLIER	0	626	0.43	1.134	53.078	0.000
	1	178	1	1.515		
	2	97	1.39	1.717		
	3	103	1.63	1.754		
	4	141	2.09	1.8		
	Total	1,145	0.91	1.531		
PROs	0	626	0.52	1.229	49.652	0.000
	1	178	0.98	1.511		
	2	97	1.21	1.652		
	3	103	1.52	1.754		
	4	141	2.3	1.824		
	Total	1,145	0.96	1.566		

Table 18.6 ANOVA model summary. Dependent variable: IP (product innovation)

Model summary					
Model	R	R^2	R^2 corrected	Estimation standard error	
8	0.577	0.333	0.328	1.132	
ANOVA					
	Sum of squares	d.f.	Quadratic average	F	Sig.
Regression	724.609	8	90.576	70.686	0.000 h
Res	1454.383	1,135	1.281		
Total	2178.992	1,143			
Coefficients					
Non-standardized coefficients			Standardized coefficients	t	Sig.
	B	Standard error	Beta		
(Constant)	0.168	0.045		3.72	0.000
RD_INTERN	0.177	0.034	0.224	5.272	0.000
DESIGN	0.226	0.053	0.121	4.255	0.000
PAI	0.389	0.117	0.123	3.311	0.001
MK	0.259	0.062	0.121	4.197	0.000
RD_exp_inter	−8.08E-09	0	−0.095	−3.748	0.000
CUSTOMER	0.066	0.032	0.07	2.102	0.036
RD_employ	0.002	0.001	0.069	2.348	0.019
RD_EXTERN	0.058	0.029	0.066	2.007	0.045

significant in explaining their improved innovation performance. In general, pre-dictive variables differ depending on type of innovation. *External R&D activities* and *Technological Collaboration with Providers* are key variables in explaining product innovation. Key explanatory variables for process innovation are *Techno-logical collaboration with customers*, *Innovation Activity Planning*, and *Hi-tech activities*. *Internal Research and development activities*, however, emerges as the only variable important for both types of innovation (Tables 18.6 and 18.7).

Table 18.7 ANOVA model summary. Dependent variable: IPR (process innovation)

Model summary					
Model	R	R^2	R^2 corrected	Estimation standard error	
4	0.515	0.265	0.263	1.241	
ANOVA					
	Sum of squares	d.f.	Quadratic average	F	Sig.
Regression	633.421	4	158.355	102.869	0.000
Res	1753.355	1,139	1.539		
Total	2386.775	1,143			
Coefficients					
Non-standardized coefficients			Standardized coefficients	t	Sig.
	B	Standard error	Beta		
(Constant)	0.425	0.05		8.452	0.000
AAT	0.277	0.033	0.267	8.392	0.000
PAI	0.474	0.128	0.143	3.706	0.000
CUSTOMER	0.096	0.034	0.096	2.854	0.004
RD_INTERN	0.093	0.034	0.113	2.707	0.007

18.5 Conclusions

Key findings of our study are that firms that tap into external knowledge sources are more likely to achieve innovation output in product and process innovation. These external sources include suppliers, customers, competitors, and public research organizations (PROs) such as universities or research transfer offices. Thus, open (inbound) innovation activities are a crucial driver of innovation in this entrepreneurial activity framework.

This paper focuses on low- and mid-tech companies, characteristic of the Spanish manufacturing sector. This sector generally has poor innovation performance in comparison with other members of the European Union. Our study makes a substantial contribution to research because most papers on open innovation are focused on high-tech samples. The variables with significant effects in LMT firms are different from those that are important in hi-tech firms. This finding is consistent with the idea that *neglected* (non-R&D performers) innovators rely on a different set of activities from R&D (Piva and Vivarelli 2002; Albaladejo and Romijn 2000), which in many cases means that these non-R&D performers are unsupported by policies (Arundel et al. 2008).

This study's limitations include the limited reference period for the data, which ended in 2006. Challenging questions would probably arise when analyzing data after 2006. Changes in firms' strategy and effects on innovation of the economic environment, which worsened post-2006, may be quite distinct.

Further studies could also be conducted to explore the interaction effect between internal and external resources in light of contradictory results in the existing literature. Some scholars claim this effect is positive (see Cassiman and Veugelers 2006; Nieto and Quevedo 2005; Escribano et al. 2009), whereas other assert that it is negative (Laursen and Salter 2006; Vega-Jurado et al. 2008).

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Chapter 19
Socio-Economic Return of Start-Up Companies: An Advantage of Entrepreneurship

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Abstract Over recent years the value of start-ups has been changing rapidly. This paper presents a methodological and quantitative model of the emergent valued practices. Using the SABI data in 2012 it is shown the social value of start-up and consolidate companies; at least in two of its aspects: generation of economic value with social impact and socio-economic return. The application of this model makes possible the quantitative and monetized comparison of integrated value between companies, which would involve more efficient decision-making. Quantitative analysis revealed that this model makes possible the comparison between start-up and consolidated companies. The results indicate that there are differences between them and the created value of start-up companies is bigger than that created by consolidated ones; at least in relation to suppliers, administration and shareholders. It reinforces the importance of the start-up companies in our society from the value point of view and reflects the need by authorities to improve the quality and process of value quantification using the social frameworks. Moreover this model could be used as a tool to value the benchmarking process of the social entrepreneurship.

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19.1   Introduction

Generating social value by the start-up is a topical issue, having developed a whole line of research around social entrepreneurship (Brooks 2008; Korsgaard and Anderson 2011; Nicholls 2009) as a way of generating specific value to society through the pursuit of economic activities. However, very few studies incorporate the evolutionary perspective on the approaches related to the generation of social value (Nelson and Winter 1982; Williamson and Winter 1993). Corporate Social Responsibility is not integrated systematically. Precisely for this reason, this article aims to fill this gap in the literature by contributing a monetization methodology of the social value to enable the quantification of the value generated by the "start-up" companies and compare it with that of consolidated companies.

Social responsibility has been widely studied (e.g., Carroll 1999; Clarkson 1995; Murillo and Lozano 2006), but not its incorporation in the early stages of the creation of enterprises (Retolaza et al. 2009); and even less its integration with stakeholder theory (Freeman 1984; Freeman et al. 2004, 2010). This connection can facilitate not only the incorporation of social responsibility in the primary stage of the process of starting a business (Retolaza et al. 2009; San-Jose & Retolaza, 2012) but also its relationship with the Balanced Scorecard (Retolaza et al. 2012); allowing discretionary management of the improvement of the social value generated by the organisation. Nevertheless, there is a significant deficit relative to methodologies to quantify the social value generated by new business initiatives. This deficit hinders the return of the value created, both to society and the stakeholders, wasting the competitive advantage that this could mean to such entities, of how the generated social value is perceived by Society in general and the Public Administration in particular.

A methodological proposal based on four main areas is done in this article: action research, stakeholder theory, phenomenological perspective and fuzzy logic, as embodied in the polyhedral model; which has been successfully tested in various organisations. This model identifies three complementary types of added social value: the first refers to the social impact of economic activity; the second, the socio-economic return to the Public Administration and the third to the specific value created for stakeholders. The optimal utilisation process of the model is of the character "micro", with subsequent aggregation of the value generated by the different entities. Since this is a slow process to implement, we will work with secondary data aggregates to estimate the social value generated by the "start-up" in general, and compare it to that generated by consolidated companies.

The article is structured as follows: in the next section a review of the literature – not only of the quantification and distribution of social value, but its use in social start-ups- will be made. In the third section the methodology corresponding to one of the objectives of this work is discussed in terms of formulating a model called Polyhedral that permits the quantification of social value; the hypotheses and the sample used are also described. Following which, the results are shown by comparing a significant part of the social value generated by consolidated companies and "start-up" companies; it also determines the value that is returned to the Administration. Finally, conclusions and main lines of future research are discussed.

19.2   Literature Review

Since the beginning of the industrial age a company has been considered as an entity that generates economic value (Groth et al. 1996), forgetting, or relegating its social role to the background (Fernandes et al. 2011). Consequently, we have been provided with increasingly sophisticated accounting systems that try to identify and convey the true image of the company in its financial function (Gassenheimer et al. 1998). In recent decades it has been propounded, with some success, the role of business not only as an economic value generator, but also of social value (Argandoña 2011; Jensen 2001). And while at first, this approach was performed from a subtractive perspective, through negative externalities; later, we have progressed toward a more positive outlook such as CSR (Carroll 1999) or the Citizen Company (Neron and Norman 2008).

As for social entrepreneurship, it has been the object of tiered study only during the last two decades, so it is in an incipient state (Thompson et al. 2000; Short et al. 2009; Granados et al. 2011). One of the lines with large deficits in the study of the theories of strategy is precisely the measuring of the value and its creation (Short et al. 2009; Kraus et al 2013). So, Nicholls (2009) considered as the first theoretical and practical work on the social impact of social entrepreneurship argues that, in view of the positivism and after analysing both the use of SROI as well as the Blended Value, despite the controversy regarding the performance social enterprise, the integrated social value is fluid, contingent and dynamic. Therefore recommending its use to achieve strategic objectives in social enterprises and start-ups as it will enhance not only the social performance but also the accounting transparency which itself generates value, such as in the decision-making by all stakeholders. Along these lines Korsgaard and Anderson (2011) demonstrate through a case study in Denmark that accounting is based on only explaining one of the parts of the economic value generated and therefore the deficit must be made up. For this they show how social value can be created in multiple ways at different levels and centres of the company from the betterment of individuals to the overall value to society. Especially emphasised is the social role of entrepreneurship compared to its economic role. None of these studies of the social value of entrepreneurship determines concisely how to measure it let alone how to compare its value with established companies. However they do show the existing social impact around entrepreneurship and the fact that it is considered not only an economic phenomenon but also social one hence its relevance.

Returning then to the measurement of social value. It has a long tradition in the economic sciences (Schumpeter 1909); however to date it's evaluation has not been adequately standardised. While CSR frameworks are a serious attempt to establish a set of rules and standards to permit its objectification (Gawel 2006), the fact is that the existence of about 300 frameworks (Mazurkiewicz 2004) clearly demonstrates that the goal has not been achieved. In the last decade, one of them, the GRI has reached global significance; which could lead to an accounting standardisation (Tapscott and Ticoll 2003). However, the GRI so far has not established standards related to the quantification of indicators; and since it was developed as a means of

presentation rather than valuation, it is not expected to do so. While it is true that the latest version of the GRI (GRI -4) and "Integrated Reporting," currently in eclosion, do seem to progress toward a certain homogenisation and standardisation of the indicators.

The comprehensiveness of the value generated by the company, understood as blended value (Bonini and Emerzon 2005; Porter and Kramer 2006, 2011) is the cornerstone of ethical responsibility of organizations (Retolaza et al. 2009). New businesses, especially those related to social entrepreneurship, are creating significant value to society which however is not documented and therefore undervalued (Nicholls 2009; Brooks 2008; Korsgaard and Anderson 2011). The key problem to analysing the value is that conventional methods only capture the financial value generated for shareholders. While the value, both economically and socially generated for other stakeholders, is not reflected in these indicators (Olsen and Nicholls 2005; Korsgaard and Anderson 2011), so a standardised process (Nicholls 2009) that can objectify this value is necessary.

One interesting contribution, albeit partial, is the introduction of the concept of socio-economic return (Emerson and Twersky 1996; Emerson et al. 2000) which is understood as the total amount of revenue and cost savings achieved by the Administration; from the perspective of stakeholder theory it would reflect the social value generated for one of the stakeholders of the company, the Administration.

19.3 Methodology, Hypothesis and Sample

19.3.1 Methodology

The methodological framework within which the proposed monetization of social added value is developed, is based on four assumptions that differ somewhat from those used in previous methodological proposals. These assumptions are: action research as a form of research, stakeholder theory as a theory of firm, the phenomenological perspective as an epistemological paradigm and fuzzy logic as a system of calculation and interpretation of results.

Regarding the "action research" as a methodological process (Lewin 1946; Reason and Bradbury 2001), it stands out as a coparticipative process that incorporates the actors in the research process; which, far from obtaining a definite result, reaches partial conclusions that are immediately contrasted with reality through action in a process of continuous improvement. This research method allows the integration of academics and practitioners in the quantification and increased social value (Barraket and Yousefpour 2014).

Meanwhile, stakeholder theory, proposed by Freeman (1984; 2010) and developed by a wide range of researchers (i.e. Argandoña 2011; Carroll 1999; Clarkson 1995), allows to understand the company differently from traditional firm theories; because it considers that it should be responsible to, not only for the Shareholders but the whole of the stakeholders, defined as the group of people who affect and are affected by the organisation. This approach naturally extends the value generation

of shareholders, for which economic indicators are quite suitable to all stake-holders, for which there are no adequate and standardised measurements of the value that the company generates. Although there are some doubts about the use of this theory as a basis to support the social value (Melé 2009) due to a possible reduction of the common good to the whole of the interests of the different groups that make up an organisation; who may even be antagonistic to those of other organisations, excluding the interests of those outside the organisation. We con-sider, first, that the transition from the concept of financial value to social value (Argandoña 2011), enables the integration of a diverse plurality of specific values for the different stakeholders, also, the incorporation of non-stakeholders and sectoral stakeholders (Retolaza et al. 2014) allows to identify the gaps in social value generation, therefore incorporating the quantification thereof.

The phenomenological perspective, merely epistemological in our case, allows the individuals receiving the social value, the stakeholders, to define it (Polkinghorne 1989); rather than doing it from the objectives of the same organi-sations or from public-private standards that do not necessarily coincide with the perception of the recipients.

Finally, the fuzzy logic developed by Zadeh (1968) and subsequently incorpo-rated into the economy (Kaufmann and Gil Aluja 1986), allows us to work with fuzzy categorisations of stakeholders and with value ranges. Thereby allowing for the solution of the main problem in the selection and assessment of proxies: their ambiguity.

From these foundations a methodological process has been developed to quan-tify social value for which previously used methodologies have been taken into account (Tuan 2008; Olsen and Galimidi 2008). In general, all previous attempts at economic quantification of social value have been based on the cost-benefit analysis (Mill 2006), mainly from the perspective of output optimising. Highlighting two types of guidelines, the one of a subtractive nature, where the inputs are subtracted from the outputs and the one that takes the form of a ratio by dividing the outputs from some type of inputs. Although ratio analysis have been most frequently used, giving good results when the analysis focuses on a single input, or in inputs provided by a single stakeholder. The fact is that they are inoperative when the inputs are provided by a complex set of stakeholders, so much so that it is impossible to interpret the significance of the result (Javits 2008). That being so, dynamic information systems [MIS Social] for viewing different relationships between inputs and outputs through tables can possibly be considered as the ideal model (Emerson et al. 2000). The existence of efficiency analysis between inputs and outputs based on complex relationships, such as data envelopment analysis [DEA] are missing; possibly remaining as an important line of future research.

Alternatively to the chain of creation of impact (Olsen and Galimidi 2008), which seems a suitable framework for calculating the social value of investments, but difficult to implement if what is intended is to calculate the social value generated by the whole of an organisation within a year, we have developed a proprietary model called Polyhedral Model, which integrates the four budgets presented with the cost-benefit (Fig. 19.1).

Fig. 19.1 Social value for
the stakeholders: polyhedric
model (Source. Retolaza
and San-Jose 2015,
forthcoming)
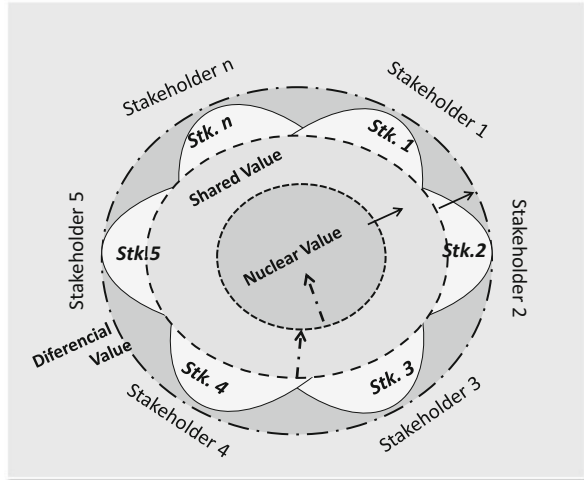
The proposed model considers the value from the perspective of each of the potential stakeholders of the company, considering that the social value is nothing but the consolidated value of all generated values. This approach not only introduces a new concept of value, but allows to link it with the management through the concept of alignment of interests (Kaplan and Norton 2013), a key aspect of the Scorecard (Kaplan and Norton 1996, 2004). In this sense the Polyhedral Model is presented as a robust model that allows the analysis of many different types of organisations; applicable to both the scope of the assessment and the management.

From the application of the model to the analysis of various social entities, it has been possible to confirm the existence of three poles or ecosystems of social value: (1) the social impact of economic activity; (2) the socio- economic return for the Administration; and (3) the specific social value generated for various stakeholders. With regard to the first it should be noted that there are two fundamental poses for monetary quantification of the generated social value, first, the one proposed by the Global Report Impact (GRI), which considers the Cash Value Added Statement [CVAS] as the best way to calculate the social impact as it comprehensively reflects the level of commitment of the company with their respective stakeholders. However, from AECA it is considered that the added value is a better indicator, because it fundamentally reflects better the real contribution of value from the company and facilitates the integration of results in determined geographical, national or sectorial levels. In our analysis we decided to use the CVAS, because it allows better visualisation of the generation and global distribution of the captured value, but not necessarily that of added value, of a company. However when integrating data of a macro character, it would be necessary to turn to the added value to avoid duplication of values between different companies.

Regarding the socio-economic return, we have a particular case of generated value for a stakeholder, the Administration. This is obtained by subtracting the outcomes generated towards the Administration, the costs that it may have incurred

in relation to the analysed entity. Although sometimes it is taken as synonymous of social value, the fact is that it is a reductionism of the same, as only with a fictitious identification between society and administration could that conclusion be reached. In general, the value generated for the Administration is only part of the total generated value.

The specific social value is defined as the non-economic value that the organisation distributes among its various groups of interest. The key feature of this value is that it can be appreciated only as such by a specific group, being very inferior or even null the value that it provides to other specific groups of interest. The other key aspect is its non-monetary nature, forcing us to resort to proxies of a subjective nature to monetize the positive economic value and the generated savings by the social impact (Emerson et al. 2000). With this value we are not making reference to the intrinsic value of the social good, not even to its value of use; but we are merely making an approximate reference to the value of change that can be attributed to a particular society and to the given time in which the assessment is made. In this regard we can point out that the monetary approach as an incomplete reflection of social value has some important advantages (Scholten et al. 2006): firstly, it facilitates the integration of social and economic outcomes and therefore its possible alignment; secondly, it contributes to transparency by identifying and clarifying the outputs related to the social value; thirdly, it facilitates comparative analysis by simplifying the evaluations of stakeholders and their decisional processes.

19.3.2 Hypothesis

The empirical work represents a first approach by the use of aggregated data in the first two levels of analysis: social value generated by economic activity and socio-economic return for the Administration. The third level of analysis, perhaps the most interesting one, remains to be investigated in the future. Since it is unapproachable by secondary data it will therefore be necessary to wait for companies to develop their specific analysis, or alternatively to use secondary data from sub sectors with very similar characteristics.

As the object of the research focuses on comparing the generated social value by the "start-up" in relation to consolidated companies, we will accept as a starting hypothesis the null hypothesis, considering that:

H0: There is no difference in the generated social value by the "start-up" in relation to the consolidated companies

However we will divide this hypothesis into two sub-hypotheses, also null, which relate to the first two levels of analysis proposed in the methodology:

H01: The distribution among the stakeholders of the value generated by economic activity is similar in both types of companies

H02: There is no difference in the generated socio- economic return to the Administration by both types of companies.

Since this analysis is going to be built with a global value for each of the groups of entities, it will be considered that there exists a significant difference between the two values when it is above 5 %.

19.3.3 Sample

The population on which we have worked is the set of existing companies in Spain, considering as "start-up" those less than 3 years old and as consolidated all of the other companies. The analyses were performed from the data of 2012, using the SABI database of Bureau van Dijk, so that only those companies who have submitted their accounts in the Commercial Register are gathered; for the "start-ups," the population ascends up to 65,438 companies, while the consolidated group ascends up to 769,928 companies. The data has been collected and analysed between March and April 2014.

19.4 Empirical Results

Following the approach of Cash Value Added Statement as proposed by GRI a comparative analysis of the captured and distributed value has been undertaken by both the "start-up" and the established companies. The following charts show the percentage value distribution by companies among its various stakeholders (Fig. 19.2).

The results of consolidated companies show that 66.63 % corresponds to the raw materials; the other values are more distributed; referring to employees a 12.81 %, to suppliers, bank and administration a 6.15 %, a 6.58 % and a 7.16 %; respectively. Stockholders are only being remunerated with a 0.67 % (Fig. 19.3).

The results of the start-up companies are different in that the 54.82 % are raw materials. The other values are less distributed than those in the previous case; it shows suppliers with a 17.28 %, employees, administration and banking a 12.29 %, 9.78 % and 3.90 %; respectively. The shareholders are remunerated with a 1.93 %.

Based on the established criteria of a 5 %, we can conclude that there are significant differences in relation to all stake-holders, except for employees; consequently we can consider that the null hypothesis has been refuted and therefore we assume that there are significant differences in the distribution of generated value by the "start-ups" in relation to the consolidated companies.

Regarding to the generated value for the Administration to which we have called socio-economic return [SER], we have performed a comparison between the two types of companies, taking into account four main factors: (1) paid taxes,

Fig. 19.2 Consolidated companies: value creation and distribution

Suppliers; 6,15%

Workers; 12.81%

Administration; 7,16%

Banks; 6,58%

Shareholders; 0,67%

Raw Materia & Energy; 66,63%
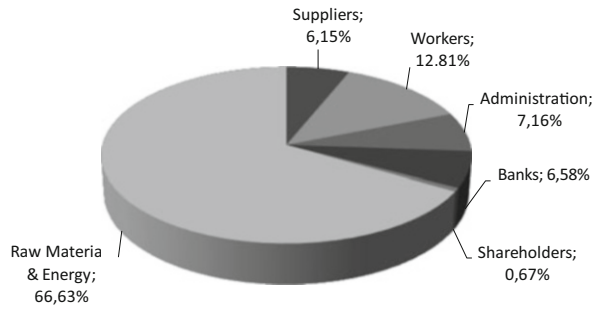
Fig. 19.3 Start-ups: value creation and distribution

Suppliers; 17,28%

Workers; 12,29%

Administration; 9,78%

Banks; 3,90%

Shareholders; 1,93%

Raw Materials & Energy; 54,82%
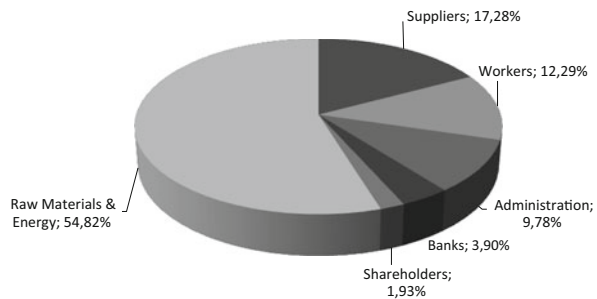
(2) corporate taxes, (3) social costs, (4) variation in maintained employment – generation/destruction and (5) generated VAT. To calculate the economic impact of the change in employment it has first been calculated the created/destroyed employment, comparing the number of employees from 2011 to 2012; the result is that the consolidated companies have lost 813,006 jobs, while the "start-ups" have generated a total of 84,773 jobs. When considering the value for the Administration, a negative value equal to the average perception of perceived unemployment has been considered for the lost jobs, which is set at €921.4 for the year 2012; regarding the value of created new jobs, only social costs have been taken into account, calculated using a proxy of 30 % of the average wage, which in 2012 amounted to €22,790, multiplied by the number of created jobs (Table 19.1).

As shown in the chart, the socio-economic return generated by the consolidated companies is €139,000, while the new companies generated €75,290; but this data is of less relevance due to the average size; the consolidated companies are globally larger, 8.42 versus 3.59 respectively. So, considering the return per worker, the return of the "start-ups" is a 26.8 % higher than in consolidated companies, standing at 20,980€ compared to 16,550€ generated by those consolidated. Consequently the null hypothesis should be rejected and it must be considered that the "start-ups" generate greater socio-economic value to the Administration, once the size has been equated, by the proxy of the number of employees.

Table 19.1 The administration and its socio- economic return: 2012

	Socio-economic return for administration					
	Consolidated companies group			"Start-up" group		
	Total amount	Companies average	% income	Total amount	Companies average	% income
Paid taxes	7,604,513	9.88	0.51 %	277,692	4.24	0.55 %
Corporate taxes	4,469,834	5.81	0.30 %	823,557	12.59	1.64 %
Social costs	30,071,912	39.06	2.01 %	601,770	9.20	1.19 %
Employment generation		0.00	0.00 %	579,593	8.86	1.15 %
Employment destruction	−8,989,245	−11.68	−0.60 %		0.00	0.00 %
VAT	74,091,516	96.23	4.95 %	2,644,406	40.41	5.25 %
Total companies	**107,248,530**	**139.30**	**7.16 %**	**4,927,018**	**75.29**	**9.78 %**
Total employees	**12,741,152**	**16.55**		**1,373,097**	**20.98**	

19.5 Conclusions

The conclusions of this study are mainly two, the first one of the methodology type, in that the Polyhedral Model and Spoly methodology that results from it, seem adequate to capture and monetize the social value generated by the organisations of new creation. In this sense it can be a very useful instrument to quantify the social value, not just for the "start-ups" in general, but also for the different types and sectors of "start-ups," and particularly of the social entrepreneurship. Also especially in its third level, specific social value, it seems to be an instrument that can help assess and develop benchmarking processes relating to social entrepreneurship.

Second, the application to the analysis of secondary data relating to the "start-ups" against the consolidated companies, allows to corroborate that the model of value distribution between stakeholders differs from both types of companies, being higher the value generated by the "start-ups" for suppliers, the Administration and the shareholders; while those consolidated generate more percentage value for financial institutions, as well as higher costs for raw materials and energy, which can hardly be described as social value. Regarding the employees, the percentage value distributed by both types of entities does not differ significantly.

However, some limitations can be highlighted; for example the fact that the social value generated could not be analysed as a whole since this requires individual quantification or that the study has been performed only with Spanish data, which limits its generalisation at a global level as Spain has certain particularities concerning entrepreneurship.

With regard to future research it is apparent that there is a need to focus on quantifying the full social value for different types of "start-up," which can not only allow a more meaningful comparison with the consolidated companies of the same typology, but also between the "start-ups". These results can guide both public support as well as possible private investors.

Moreover, the approach of action research and open approach of the methodological proposal for the monetization of the added social value, allow developing a line of research around the improvement of the methodology, both in its design and in the selected proxies and their attributed values. Also, as we have pointed out in the text, it opens up the possibility to work with complex analysis of efficiency between the inputs and outputs, such as the techniques for data envelopment analysis (DEA).

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